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NEW PSEUDOSCORPIONS, CHIEFLY NEOTROPICAL, OF THE SUBORDER MONOPHYRONIDA

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The present paper is concerned with new records, a new genus, and several new species of monophryonid pseudoscorpions, chiefly neotropical, from the collections of the American Museum of Natural History. In addition, for comparative purposes and virtually as an appendix, a brief

diagnosis is given of *Idiochelifer nigripalpus* (Ewing, 1911), a species heretofore not adequately described. Unless otherwise indicated, measurements and observations are based on specimens cleared in beechwood creosote and mounted in Canada balsam.

SUBORDER MONOPHYRONIDA CHAMBERLIN, 1929

FAMILY ATEMNIDAE CHAMBERLIN, 1931

Subfamily Atemninae Beier, 1932

GENUS ATEMNUS CANESTRINI, 1884

Atemnus CANESTRINI, 1884, in Berlese, A., *Acari, Myriopoda et Scorpiona hucusque in Italia reperti*, vol. 10, p. 101; BEIER, 1930, *Ann. des Naturhist. Mus. in Wien*, vol. 44, p. 200; BEIER, 1932, *Zool. Jahrb. (Syst.)*, vol. 62, pp. 574-575; BEIER, 1932, *Das Tierreich*, vol. 58, p. 45.

GENOTYPE: *Chelifer politus* Simon, 1878.

DIAGNOSIS: Carapace smooth, without transverse furrows; usually with more or less distinct eye spots. Tergites in part divided. Serrula exterior with 21 to 22 plates; galea with subterminal and terminal rami. Palps moderately stout, in part granular. The tactile seta *it* of the fixed finger distal to the midpoint of the finger and at the most as far from the finger tip as the distance of tactile seta *ist* from *isb*; *esb* about as far from *est* as *isb* is from *ist*. Tactile seta *st* almost midway between *sb* and *t*. Genital complex of the male with an incompletely sclerotized inner arch so that only the lateral portions appear dark. Legs moderately slender. The tactile seta of the fourth pedal tarsus is placed near the base of the podomere.

Atemnus neotropicus, new species

Figures 1-2

MALE: Unknown. ●

FEMALE: Body relatively long and slender; body yellow to light yellowish brown in color, palpi deep reddish brown; legs yellow; length of body about 4 mm. Carapace relatively small, light in color; posterior margin with possibly about 10 acuminate setae, some broken from specimen; sparse setae of surface of carapace scattered and acuminate; eye spots very weak; carapace about 0.9 mm. long, width slightly less. Abdomen slender and little sclerotic; tergites smooth, mostly divided, each tergal half in the center of the body with seven or eight acuminate setae; sternites very light in color, mostly divided by a weak suture, setae a little more numerous than on the tergites; length of abdomen about 3.2 mm., width less than one-half of the length.

Chelicera: Relatively small; yellow in color; subbasal seta wanting, basal seta relatively short and with a few denticulations near the end, exterior seta subequal in length to the basal; base of chelicera smooth; at least the longest seta of the flagellum with long and slender serrations; length of chelicera about 0.235 mm., width of base between 0.15 and 0.16 mm.; length of movable finger about 0.23 mm. Fixed

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finger bent near the center to produce an angular inner margin; lamina exterior well developed; apical tooth broken from both chelicerae; distal portion of inner margin with five or six contiguous and retroconical denticles. Movable finger fairly stout, little curved; apical tooth relatively slender and acute; subapical lobe weak and located at very base of the apical tooth; inner margin of finger with two rounded denticles near the level of the insertion of the galeal seta; galeae broken from both fingers; serrula exterior of each finger damaged, probably consisting of about 20 plates.

Palpus: Stout; setae sparse, mostly with one or two subterminal denticulations; setae of maxilla and fingers acuminate; a very few longer acuminate pseudotactile setae present; protuberances of the outer surface of the trochanter along with the flexor or inner surfaces of the femur and tibia very weakly granular, with granulations equally strong on the femur and the tibia. Maxilla light in color; length 0.48 mm., width about 0.23 mm. Trochanter with well-defined pedicle about as long as wide; inner margin weakly convex; two rounded but well-developed protuberances, the subdorsal one placed distal to the sublateral one; length of trochanter 0.38 mm., width 0.225 mm. Femur with basal half lighter in color than the distal half; pedicle about as long as wide; extensor margin flatly convex in the central part, rounded beyond; basal portion of the flexor margin weakly convex, the distal half weakly concave; femur widest at a point somewhat proximal to the center; length of femur about 0.66 mm., width 0.29 mm. Tibia with a pedicle much longer than wide; inner surface of tibia bulging; outer margin with a slight convexity in the region of pedicle; basal portion of the extensor margin flatly convex, much more convex beyond; length of tibia 0.66 mm., width 0.33 mm. Chela with hand stout; pedicle near center of base; both margins weakly convex; hand not especially narrowing at the base of the fingers; fingers stout, little curved; length of chela without pedicle 1.04 mm.; width 0.42 mm.; length of hand about 0.65 mm.; depth of hand greater

than the width, about 0.46 mm.; length of movable finger about equal to the depth of the hand, 0.45 mm. From the side, chela stout; pedicle displaced a little towards the ventral side; both dorsal and ventral margins weakly convex; fixed finger stout, outer margin very weakly convex, inner margin more convex in the distal half, nearly straight in the proximal half; movable finger more slender than the fixed finger, outer margin moderately convex, inner margin concave. Fixed finger with small, retroconical, cusp-bearing teeth on the distal and convex half of the margin, more proximal teeth very weak; nodus ramosus of fixed finger about midway between tactile setae *et* and *est*. Movable finger with about 35 teeth, those of the distal one-third of the margin contiguous, conical to subconical, becoming gently reduced, flattened, and acuspid in the central portion of the finger margin; teeth absent from the basal one-fourth of the margin. Tactile setae of the movable finger with *t* more than one-third of the finger length from the tip, *sb* near the basal one-fourth of the finger, *st* midway between *t* and *sb*, *b* less than two areolar diameters proximal to *sb*. External series of fixed finger with *et* within the distal one-fourth of the finger, *est* not much distal to the midpoint of the finger and farther from *et* than *et* is from the finger tip; *esb* and *eb* basal in position and separated by about two areolar diameters; *it* between the levels of *est* and *et* and just a little proximal to the level of the nodus ramosus; *ist* not far proximal to the level of *it* and nearly on a level with *est*; *isb* and *ib* on about the same level as *eb*.

Legs: Fairly stout; not granular; setae subacuminate to acuminate; terminal claws simple. First leg with both margins of pars tibialis weakly convex, 0.34 mm. long, 0.155 mm. deep; tibia with extensor margin weakly convex basally but very weakly concave beyond, length 0.37 mm., depth 0.105 mm.; tarsus subcylindrical, length 0.29 mm., depth 0.072 mm. Fourth leg with trochanter 0.27 mm. long, 0.175 mm. deep; pars basalis subtriangular, length 0.295 mm., depth 0.205 mm.; pars tibialis with extensor margin evenly arched, flexor margin very weakly

convex, length 0.575 mm., depth 0.27 mm.; entire femur 0.73 mm. long, 0.27 mm. deep; tibia with distal half of the extensor margin straight, length 0.545 mm., depth 0.155 mm.; tarsus deepest across the proximal end, tapering slightly towards the distal end, length 0.37 mm., depth 0.098 mm.; tactile seta of tarsus removed from the basal margin by about 0.038 mm.

Genital complex: Position of specimen precludes detailed study of the genital complex.

TYPE LOCALITY: Mona Island, West Indies, February 21–26, 1914. Known only from one specimen, the female holotype.

REMARKS: The occurrence of *A. neotropicus* is the first record of the genus *Atemnus* (*sensu stricto*) from the Western Hemisphere, all other species being found in the southern part of the Palearctic region. By virtue of the relatively stout palpal podomeres, our new species resembles very closely *A. letourneuxi* (Simon, 1881) from North Africa. The two species may be separated by the less convex external margin of the palpal femur, the slightly stouter chelal hand, and the more slender fourth leg of *A. neotropicus*. Considering the great distance which geographically separates these two forms, the close similarity is indeed remarkable.

***Paratemnus nidificator* (Balzan, 1890)
Beier, 1932**

Chelifer nidificator BALZAN, 1890, Ann. Mus. Civ. Genova, ser. 2, vol. 9, pp. 417–418, pl. 13, fig. 5. *C. (Atemnus) nidificator* BALZAN, 1891, Ann. Soc. Ent. France, vol. 60, pp. 510, 547, pl. 9, fig. 1. (?) *Atemnus elongatus* BANKS, 1895, Jour. New York Ent. Soc., vol. 3, p. 10. *Chelifer nidificator* ELLINGSEN, 1902, Mém. Soc. Zool. France, vol. 15, p. 146. *C. (Atemnus) nidificator* ELLINGSEN, 1905, Boll. Mus. Torino, vol. 20, no. 500, p. 2. *Atemnus elongatus* BERGER, 1906, Ohio Nat., vol. 6, pp. 489–491, pl. 31. *Chelifer nidificator* TULLGREN, 1907, Mitt. Mus. Hamburg, vol. 24, p. 56; WITH, 1908, Trans. Zool. Soc. London, vol. 18, pp. 321–324, fig. 83, pl. 31, fig. 36a, b. *Lamprochernes nidificator* BEIER, 1930, Ann. des Naturhist. Mus. in Wien, vol. 44, p. 211. *Paratemnus nidificator* BEIER, 1932, Zool. Jahrb. (Syst.), vol. 62, p. 567; BEIER, 1932, Das Tierreich, vol. 58, pp. 37–38, fig. 39; ROEWER, 1937, in Bronn, H. G., Die

Klassen und Ordnungen des Tierreichs, vol. 5, div. 4, book 6, no. 2, p. 283; MELLO-LEITAO, 1939, Notas Mus. La Plata, vol. 4, Zoología no. 17, p. 118. (?) *Paratemnus elongatus* HOFF, 1946, Proc. New England Zool. Club, vol. 23, pp. 109–113.

LOCALITY RECORDS: Two collections, each consisting of a single female, from La Buena Ventura, Vera Cruz, Mexico, taken in July, 1909, by A. Petrunkevitch. A single collection, containing 40 individuals and including adults of both sexes as well as nymphs, from the upper Rio Mapuera, Brazil, February 2, 1938, made by W. G. Hassler. Two collections, each of a single female individual, from British Guiana: one from the vicinity of Kaietur (collector and date unknown); the other from the region of the Shudicar River, upper Essequibo River, on January 1, 1938, by W. G. Hassler. All the individuals are mounted on slides except 26 specimens of the Brazilian collection.

REMARKS: The present material agrees well with the descriptions given in the literature except that, in the two specimens from British Guiana, the movable chelal finger is much more slender and curved than in the other specimens. This single difference seems hardly sufficient to justify the erection of a new species. *Paratemnus nidificator* has a very wide distribution throughout the Neotropical region, being reported previously by various writers from as far south as Argentina and as far north as Guatemala.

A study of the present series of individuals leads the writer to reconsider his previous opinion (1945) that Banks' *Atemnus elongatus* is not synonymous with *P. nidificator*. From a study of the lectotype of *A. elongatus* and a study of the literature relative to *P. nidificator*, the writer (1945) listed several differences between *elongatus* and *nidificator*. It appears probable that these differences are of lesser taxonomic importance than formerly thought. When additional specimens of *elongatus* become available for study, it may be possible to show the true relationship of the two species under discussion. Until that time, however, it seems well to keep the two species separate.

FAMILY CHERNETIDAE MENGE, 1855

Subfamily Lamprochernetinae Beier, 1932

Lustrochernes communis (Balzan, 1890) Beier, 1932

Chelifer communis BALZAN, 1890, Ann. Mus. Civ. Genova, ser. 2, vol. 9, pp. 416-417, pl. 13, fig. 4. *C. (Lamprochernes) communis* BALZAN, 1891, Ann. Soc. Ent. France, vol. 60, p. 548. *C. communis* WITH, 1908, Trans. Zool. Soc. London, vol. 18, pp. 299-303, pl. 31, fig. 23a-g. *Lustrochernes communis* BEIER, 1932, Das Tierreich, vol. 58, pp. 90-91, fig. 110; ROEWER, 1937, in Bronn, H. G., Die Klassen und Ordnungen des Tierreichs, vol. 5, div. 4, book 6, no. 2, p. 290; MELLO-LEITAO, 1939, Notas Mus. La Plata, vol. 4, Zoología no. 17, p. 118; HOFF, 1944, Amer. Mus. Novitates, no. 1271, p. 3.

LOCALITY RECORD: A collection consisting of four females, two males, and two nymphs; collected by R. Ingle at the Navy Base, southwest Trinidad, November, 1944. One female and one male specimen have been mounted; the others are in alcohol.

REMARKS: Our specimens agree well with the descriptions given in the literature, except the fourth pedal tarsus is slightly more slender than in specimens from other localities. Examination of specimens of this species, both as mounted individuals and as specimens in alcohol, indicates that care must be exercised in recording the presence of eye spots, since the eye spots are very evident in specimens examined in alcohol but cannot be discerned in individuals cleared in beechwood creosote.

Lustrochernes argentinus (Thorell, 1877) Beier, 1932

Chelifer argentinus THORELL, 1877, Periodico zoológico, Buenos Aires and Córdoba, vol. 2, p. 216; BALZAN, 1890, Ann. Mus. Civ. Genova, ser. 2, vol. 9, pp. 414-416, pl. 13, fig. 3. *C. (Lamprochernes) argentinus* BALZAN, 1891, Ann. Soc. Ent. France, vol. 60, pp. 516-517, pl. 9, fig. 7; WITH, 1908, Trans. Zool. Soc. London, vol. 18, pp. 307-310, figs. 74-75, pl. 31, fig. 31a-f. *Lamprochernes argentinus* BEIER, 1930, Ann. des Naturhist. Mus. in Wien, vol. 44, p. 211. *Lustrochernes argentinus* BEIER, 1932, Das Tierreich, vol. 58, pp. 91-92; ROEWER, 1937, in Bronn, H. G., Die Klassen und Ordnungen des Tierreichs, vol. 5, div. 4, book 6, no. 2, p. 290; MELLO-LEITAO, 1939, Notas Mus. La Plata, vol. 4, Zoología no. 17, p. 118.

LOCALITY RECORD: A single collection

of three females from Rio Vermelho, S. Catharina, Brazil. Collection made by A. Maller in March, 1944, and presented to the American Museum by F. Johnson. The three females have been mounted on slides.

Subfamily Chernetinae Beier, 1932

Tribe Chernetini Beier, 1932

Parachernes (Argentochnes) robustus, new species

Figures 3-5

MALE: Body and palps stout; legs moderately stout; carapace and palps deep reddish brown, abdomen deep brown and much darker than the carapace, legs yellowish brown; length 1.8 mm. Carapace stout; entire surface coarsely granular; one pair of conspicuous eye spots; transverse furrows well developed, the median furrow near the center of the carapace, the posterior one much closer to the posterior carapacial margin than to the median furrow; sides of carapace posterior to the median furrow subparallel; setae clavate, scattered, not abundant; a transverse row of 10 clavate setae about midway between the posterior margin of the carapace and the posterior transverse furrow; a narrow unpigmented band along the posterior margin, little narrower medially than laterally; granules weakly developed in the area of the unpigmented band; length of carapace about 0.73 mm., greatest width near center and equal to 0.61 mm.; posterior width 0.6 mm. Abdomen ovate, stout, the sides convex and rounded; tergal scutae coarsely granular, divided except the eleventh, tergal halves with five to seven clavate setae; the very lateral ends of the first three tergites unpigmented; the very medial ends of the tergal scutae, at least in the central portion of the abdomen, also unpigmented; sternites 4 through 10 divided, surface of sternal halves with conspicuous net-like or scale-like markings, setae acuminate, maximum number of setae on any sternal half about 10; sternites with numerous discoidal and a few slit-like lyrifissures; pleural membranes with wavy parallel striations;

anterior stigmatic plate with two acuminate setae, the posterior plate with one; length of abdomen about 1.1 mm., width about 0.9 mm.

Chelicera: Yellow in color, dorsal surface of base marked with net-like lines; exterior setae as long as or longer than the basal seta; flagellum of three setae, the distalmost one blade-like and unilaterally serrate; length of chelicera 0.19 mm., width of base about 0.125 mm.; movable finger 0.17 mm. long. Fixed finger very slender, straight except near the ends; serrula interior with three or four distal plates free; inner margin of apical tooth with three rounded denticles, distal end of inner finger margin with three retro-conical teeth. Movable finger a little curved; two very small denticles at level of insertion of galeal seta apparently replacing the subapical lobe; apical tooth terminally with two cusps; galeal seta extending much beyond the tip of the galea; galea relatively small, weak, with two or three minute lateral and terminal denticulations; serrula exterior of 23 ligulate plates.

Palpus: Surface coarsely to moderately granular except on the chelal fingers and on the ventral face of the maxilla; granules of the flexor surface of most podomeres coarser than those of the extensor surface; setae of trochanter and femur and flexor surface of tibia and chelal hand multidenticulate, relatively short, but not distinctly clavate; setae of the extensor surface of the tibia and chela paucidenticulate; setae of the chelal fingers acuminate. Maxilla subtriangular, with two prominent setae on the apical process of each; length 0.34 mm., width 0.23 mm. Trochanter with subdorsal protuberance rounded, lateral protuberance poorly developed; inner margin evenly convex; length about 0.3 mm., width 0.19 mm. Femur with pedicle a little wider than long and well set off from the rest of the podomere; surface very coarsely granular; flexor margin markedly convex in the center, a little concave beyond; extensor margin flatly convex in the central portion, more convex towards each end; greatest width near the center; length 0.49 mm., width 0.23 mm. Tibia with a stout pedicle;

outer margin convex, more so near the distal end than elsewhere; flexor margin bulging in the center, a little concave beyond; inner surface much more coarsely granular than the outer surface; length 0.5 mm., width 0.245 mm. Chela stout; pedicle displaced far towards the outer side; extensor margin moderately convex, flexor margin bulging and convex especially in the basal portion; hand tapering towards the fingers, which are fairly stout, a little curved, and tapering towards the distal end; extensor surface of the chelal hand much less coarsely granular than the flexor; length of chela without pedicle 0.84 mm., width greatest near base and equal to 0.36 mm.; chelal hand 0.43 mm. long; hand 0.4 mm. deep, slightly greater than the width; length of movable finger exactly equal to the length of the hand without the pedicle, 0.43 mm. From the side, chela stout; pedicle at almost the ventro-basal corner of the hand; ventral margin weakly but evenly convex; dorsal margin much more convex; hand bulging in the dorso-basal portion; deepest near the basal margin, which is flatly convex; fixed finger fairly stout, outer margin nearly straight, inner margin weakly convex especially near the basal one-third; movable finger more slender than the fixed finger, gently curved. Movable finger with tactile seta *t* a little distal to the midpoint of the finger; *sb* removed from the basal margin of the finger by a distance about equal to the width of the finger at the level of *sb*; *st* about midway between *t* and *sb*; *b* about two areolar diameters proximal to *sb*; nodus ramosus of movable finger slightly proximal to tactile seta *t*. Fixed finger with *et* almost within the terminal one-fourth of the finger length; *est* a little more than one-fourth of the finger length from the base of the finger and not far from *esb* and *eb*; *it* and *ist* a little distal to *est* and well within the proximal portion of the finger, not far from *isb* and *ib*, the four internal setae forming a group; *isb* and *ib* a little distal to the level of *eb*. Movable finger with 37 conical and cusp-bearing teeth, those of the proximal end of the row virtually acuspid; five well-spaced external accessory teeth, two well-spaced

internal accessory teeth; lamina defensor near the venedens. Fixed finger with marginal teeth much as in the opposing finger; apparently six external and three internal accessory teeth.

Legs: Surface of podomeres with scale-like markings, more conspicuous on the femora and tibiae than elsewhere; setae variable, those of the extensor surface of podomeres short and often multidenticulate but not clavate, those of the flexor surface of podomeres paucidenticulate and longer, becoming acuminate on the flexor surface of the tarsi and on the pars basalis of the fourth leg. First leg with femur 0.35 mm. long, 0.115 mm. deep; tibia with distal two-thirds of flexor margin convex, proximal one-half of the extensor margin a little convex but weakly concave beyond, length 0.247 mm., depth 0.08 mm.; tarsus subcylindrical, 0.23 mm. long, 0.057 mm. deep. Fourth leg with subrectangular trochanter, 0.185 mm. long, 0.11 mm. deep; pars basalis with flexor margin flattened except at the basal end, 0.2 mm. long, 0.133 mm. deep; pars tibialis with flexor margin nearly straight, extensor margin convex but a little flattened near the center, length 0.38 mm., depth 0.17 mm.; entire femur 0.495 mm. long, 0.17 mm. deep; tibia much more slender but shaped like the tibia of the first leg, length 0.39 mm., depth 0.095 mm.; tarsus nearly cylindrical, 0.285 mm. long, 0.068 mm. wide; tactile seta of tarsus not so long as twice the depth of the tarsus, acuminate, located distal to the midpoint of the tarsus or 0.2 mm. from the proximal margin.

Genital complex: Posterior operculum with 10 setae along the posterior margin and two groups of four setae each on the posterior rim of the aperture; anterior operculum with about 14 setae in an irregular row just anterior to the aperture, numerous other setae anterior to the row.

FEMALE: Unknown.

TYPE LOCALITY: The single male, the holotype, in a collection made on June 6, 1941, by A. M. and L. I. Davis, 2 miles east of Santo Domingo, San Luis Potosí, Mexico.

REMARKS: Some of the distinctive characteristics useful for separation of *robustus*

from other *Parachernes* (*Argentochernes*) species are the shape, size, and stoutness of the palpal femur, the conspicuously granular condition of the palpal podomeres, and the nature of the lightly pigmented band along the posterior carapacial margin.

Tribe *Hesperochernetini* Beier, 1932

Hesperochernes inusitatus, new species

Figures 6-9

MALE: Body and palps stout, legs relatively stout; carapace and palps reddish brown, abdomen and legs brown in color; length of body 3.15 mm. (abdomen may be a little contracted). Carapace moderately to coarsely granular; transverse furrows very marked, the median behind the center of the carapace, the posterior closer to the posterior carapacial margin than to the median furrow; setae fairly numerous, stout, short, multidenticulate but not clavate; no eye spots; lateral margins gently convex; width greatest in the posterior portion of the carapace; posterior margin with about 20 setae, these in a somewhat irregular row; length of carapace about 1.3 mm., width nearly as great. Abdomen oval in shape; tergites except the eleventh divided; each tergite with between 18 and 22 setae, these similar to the setae of the carapace; surface of tergites granular. Sternites 4 through 10 divided, surface granular; maximum number of setae for tergal halves of central portion of body about 20, acuminate to paucidenticulate; each anterior stigmatic plate appears to have three setae, each posterior plate only two; pleural membranes rugose with wavy parallel striations; length of abdomen 1.9 mm., width nearly equal to the length.

Chelicera: Light brownish yellow in color; stout; base virtually unmarked; basal, subbasal, and exterior setae with one or two subterminal denticulations, other setae acuminate and much longer; the distalmost flagellar seta with well-spaced unilateral serrations; each of the other setae may have a very minute subterminal denticulation; length of chelicera nearly 0.39 mm., width of base 0.247 mm.; movable finger about 0.33 mm. long.

Fixed finger bent near the center; inner margin of apical tooth with four rounded denticles; distal half of inner margin of finger with six retro-conical denticles of which the proximal three are much weaker than the distal three; lamina exterior with outer margin evenly curved; apparently the distal four plates of the serrula interior free and with serrate margins, of these the distalmost one is spine-like. Movable finger stout, little curved; apical tooth stout and terminally sclerotic; subapical lobe stout and placed distal to the insertion of the galeal seta; inner margin of finger, at level of insertion of galeal seta, bearing two or three small denticles; galeal seta extending to the level of the tip of the galea; galea stout, with five short rami confined to the distal one-half; serrula exterior of 21 ligulate plates, the proximal one much longer than the remainder.

Palpus: Finely and closely granular except the chelal fingers and perhaps a small area on the ventrum of the maxilla; setae of chelal fingers short and acuminate; setae of rest of palp short and paucidentate. Maxilla 0.76 mm. long, 0.44 mm. wide. Trochanter very tumid; pedicle especially well set off from the rest of the podomere; sublateral protuberance rounded and globose, subdorsal protuberance more anterior and much more globose than the sublateral one; flexor margin convex; length of trochanter about 0.62 mm., width in strict dorsal view 0.38 mm., width with the subdorsal protuberance in profile equal to about 0.54 mm. Femur in strict dorsal view very stout; pedicle little wider than long, markedly set off from the rest of the podomere; femur bulging in the proximal portion just beyond the pedicle; inner margin convex in the basal two-thirds, weakly concave beyond; extensor margin weakly convex in the center, more convex at the ends; greatest width near the center; length of femur 0.96 mm., width 0.52 mm. In sublateral view, femur appears much wider, at least 0.56 mm., the greatest width being near the basal one-third of the femur. Tibia stout; outer margin less convex in the center than near the ends; inner margin very bulging near the center, weakly concave near the

distal end; length 1.07 mm., width 0.53 mm. Chela with pedicle displaced somewhat towards the outer margin; outer margin weakly convex in the center, more convex at each end; flexor margin bulging a little in the distal part, the entire margin more convex than the extensor margin; hand widest near the basal one-third; fingers relatively slender, little curved; length of chela without pedicle 1.76 mm., width 0.8 mm.; depth of chelal hand 0.89 mm.; length of hand without pedicle 0.87 mm.; movable finger longer than hand, about 1.05 mm. From the side, chela stout with the baso-dorsal portion much swollen; pedicle placed far towards the ventral side; ventral margin little convex, dorsal margin well rounded; fingers relatively slender; the fixed finger nearly straight; the movable finger a little curved; the inner margin of the movable finger angular near the basal one-third. Movable finger with tactile seta *t* within the distal one-fourth of the finger; *st* a little distal to the midpoint of the finger; *sb* about one-sixth of the finger length from the basal margin; *b* less than two areolar diameters proximal to *sb*; *st* almost twice as far from *sb* as from *t*; nodus ramosus about twice as far from the level of *st* as from *t*. Fixed finger with *et* close to the tip of the finger, being about as far from the tip as the width of the finger at the level of *et*; *it* closer to the level of *et* than the latter is to the finger tip, within the distal one-fifth or less of the finger length; *est* a little distal to the midpoint of the finger and *ist* a little distal to *est*; *eb* and *esb* very close to finger base; *ib* a little distal to the level of *esb*; *isb* a little closer to *ib* than to *ist*. Movable finger with about 50 small, conical, very sclerotic and darkly colored marginal teeth; 11 internal and 13 external accessory teeth; in each case the accessory teeth form a regular row. Fixed finger with marginal teeth very similar to those of the opposing finger; eight external accessory teeth forming a regular row and confined to the distal half of the finger; 14 internal accessory teeth, these also confined to the distal one-half of the finger but a few teeth arranged in transversely placed pairs, especially towards the distal end of the row.

(Counts of chelal teeth secured only from the one chela observed in lateral view.)

Legs: Surface of all podomeres finely granular; setae of the flexor surface of tarsi and the flexor surface of the fourth trochanter and pars basalis short and acuminate, all other setae short and paucidenticulate; setae numerous. First leg with entire femur 0.77 mm. long, 0.27 mm. deep; tibia with flexor margin evenly and moderately convex, extensor margin a trifle concave in the distal two-thirds, length 0.64 mm., depth 0.163 mm.; tarsus subcylindrical but flexor margin a little convex, length 0.51 mm., depth 0.114 mm. Fourth leg with the pars basalis 0.375 mm. long, 0.292 mm. deep; pars tibialis with flexor margin a trifle concave, extensor margin weakly convex, 0.79 mm. long, 0.32 mm. deep; entire femur 1.09 mm. long; tibia with flexor margin weakly but evenly convex, extensor margin nearly straight (perhaps a little concave), length 0.99 mm., depth 0.198 mm.; tarsus subcylindrical, 0.68 mm. long, 0.137 mm. deep.

Genital complex: Posterior operculum with six setae in a row on the posterior rim of the aperture; about 30 other setae on the posterior operculum, most of these in an irregular row near the posterior margin. Anterior operculum with about 30 setae in a compact group anterior to the aperture.

FEMALE: Unknown.

TYPE LOCALITY: Collection consisting of the male holotype taken by Dr. H. Wagner in May, 1942, at 1400 meters altitude near Catharinas, Chiapas, Mexico.

REMARKS: *Hesperocheernes inusitatus* is easily separated from other species described in the genus by the very stout palpal femur and the much larger palpal podomeres. It seems more closely related to *H. crassopalpus* Hoff, 1945, than to any other species of the genus.

***Dinocheirus magnificus*, new species**

Figures 10-14

MALE: Description based on three males; limits of range are given for each structure measured. Large; body fairly stout; legs slender; abdomen and legs yellowish brown, coxae somewhat reddish

brown; carapace and palps reddish brown; length of body 4-4.25 mm. Carapace with the anterior half of each side gently convex and passing without interruption into the rounded anterior margin; weak to indistinct eye spots; two transverse furrows, the median slightly posterior to the center of the carapace, the posterior furrow a little closer to the posterior carapacial margin than to the median furrow; surface moderately to finely granular; setae numerous, stout, multidenticulate but not strongly clavate; lateral portions of sides nearly parallel; greatest width across the center of the carapace and little more than the posterior width; 10 to 12 setae along the posterior carapacial margin; length of carapace 1.35-1.4 mm., greatest width between 1.1 and 1.2 mm.; posterior width 1.1 mm. Abdomen ovate; tergites except the eleventh divided, the interscutal areas of tergites 4 through 10 wide and granular; scutae finely to moderately granular; setae of tergites longer than those of the carapace but still fairly stout and terminally denticulate, somewhat subclavate; each scutum of the first tergite with seven to nine setae; most central tergal halves with 10 setae, maximum number observed for any half-tergite is 12. Sternites from 4 through 10 divided, with fairly wide granular interscutal spaces; sternites finely granular; each sternal half of the fourth sternite with six to eight acuminate setae; most half-sternites with 10 to 12 setae; pleural membranes rugose, with wavy striations; anterior stigmatic plate with four very small setae, the posterior plate with one; abdomen 2.6-2.9 mm. long, 1.6-1.7 mm. wide.

Chelicera: Fairly stout; light brownish yellow in color; base with relatively fine net-like sculpturing on the dorsal surface; exterior seta of base short, subbasal seta with three or four minute subterminal and terminal denticulations; basal seta simple; the two long flagellar setae each with a few widely spaced denticulations along one edge; length of chelicera 0.39-0.42 mm., the width of base approximately 0.22 mm.; movable finger 0.32-0.35 mm. long. Fixed finger not especially slender; apical tooth with three small denticles on the inner

surface; six or seven somewhat irregular retro-conical denticles on the distal half of the inner margin of the finger, the proximal ones of the row smaller than the distal teeth; lamina exterior extending proximally to pass along the distal part of the margin of the chelicerel hand; serrula interior with the distal four plates free and with serrate margins, the distalmost plate of the four blade-like, the others platyform. Movable finger little curved, fairly stout; apical tooth and subapical lobe stout, the latter located very near the base of the former; two or three weak denticles on the inner margin of the finger near the level of the insertion of the galeal seta; galea slender, with three or four minute denticulations confined to about the distal one-third; galeal seta not reaching to the level of the tip of the galea; serrula exterior with 21 to 23 ligulate plates.

Palpus: Moderately stout; deep reddish brown in color; the lateral surface of the maxilla, the trochanter, and the flexor surface of the femur and tibia very minutely and finely granular, otherwise smooth except for a few fine granules on the inner surface of the chelal hand near the finger base; setae of the ventral face of the maxilla fine and acuminate; setae of the chelal fingers acuminate; setae of the rest of palp fairly heavy and with a few to several subterminal and terminal denticulations. Maxilla stout, length 0.72 mm., width about 0.46 mm. Trochanter stout in strict dorsal view; lateral protuberance virtually absent; subdorsal protuberance placed distally and fairly well developed, rounded, globose; flexor margin of podomere moderately convex; length of trochanter about 0.77 mm., width in dorsal view 0.42–0.45 mm.; width much greater in subdorsal view with the protuberance in profile. Femur with pedicle about as long as wide, well set off from the rest of the podomere; in strict dorsal view, the extensor margin flatly convex in the center but more convex near each end; flexor margin weakly convex except for a very shallow concavity near the distal end; length 1.2–1.3 mm., width 0.43–0.48 mm.; length 2.7 to 2.85 times the width. Tibia with pedicle about as long as wide or a little

longer than wide; extensor margin flatly convex in the basal portion but much more convex in the distal one-third; flexor margin convex in the proximal portion but markedly concave in the distal one-third; length 1.22–1.26 mm., width 0.48–0.54 mm.; length 2.3 to 2.5 times the width. Chela stout; pedicle displaced far to the outer end of the basal margin; outer margin of hand weakly but evenly convex, inner margin more convex; hand tapering little towards the fingers; fingers relatively slender, very little curved; chela without pedicle about 2.05–2.15 mm. long, 0.7–0.8 mm. wide; length of chela 2.65 to 2.85 times the width; hand length 1–1.1 mm., hand depth very little greater than the width, 0.75–0.85 mm.; movable finger a little greater than the length of the hand without the pedicle, 1.08–1.16 mm. From the side, chela stout; pedicle displaced far towards the ventral margin; ventral margin almost straight; dorsal margin convex with the dorso-basal portion of the hand bulging and the corner rounded; a projection or angulation often observed at the juncture of the basal and ventral margins; fingers from the side somewhat slender; the fixed finger nearly straight, the movable finger curved; fingers distinctly gaping when closed; inner margin of movable finger with a concavity proximal to the midpoint. Fixed finger with more than 60 small contiguous, cusp-bearing teeth extending along nearly the entire finger margin; 13 to 16 internal accessory teeth, close together in an irregular row confined to less than the distal one-half of the finger; seven or eight external teeth confined to about the distal one-third of the finger. Movable finger with marginal teeth much as in the fixed finger; 10 to 14 internal accessory teeth, most of these contiguous and placed near the center of the finger; five to seven well-spaced external accessory teeth confined to the distal one-third of the finger. Movable finger with tactile seta *t* a little more than one-fourth of the finger length from the tip; *st* a little more or a little less than one-half as far from *t* as the latter is from the finger tip; *sb* about one-fourth or a little less of the finger length from the proximal margin; *b* a little closer

to *sb* than to the proximal finger margin; *st* between three and four times as far from *sb* as from *t*; nodus ramosus located a little proximal to the level of tactile seta *t*. Fixed finger with *et* located far distal, little more than one-eighth of the finger length from the tip and removed from the finger tip by about the width of the finger at the level of the seta; *it* on a level less distant from *et* than the latter is from the finger tip; *est* near the center of the finger and *ist* a little distal to the level of *est*; *eb* near the finger base, *esb* about twice as far from *est* as from *eb*; *isb* and *ib* a little distal to *esb*; a stiff pseudotactile seta located a little proximal to tactile seta *it*.

Legs: Very slender; tarsi with very weak scale-like markings, other podomeres very weakly sculptured or smooth; setae numerous, paucidenticulate to weakly multidenticulate except acuminate on the flexor surface of all of the tarsi and on the flexor surface of the trochanter and pars basalis of the fourth leg. First leg with depth of pars basalis 0.24–0.265 mm.; pars tibialis with the flexor margin straight to weakly convex, the extensor margin more convex; depth of pars tibialis 0.2–0.22 mm.; entire femur 0.9–0.96 mm. long; tibia S-shaped with inner margin weakly convex, outer margin weakly concave, length 0.7–0.75 mm., depth 0.13–0.15 mm.; tarsus slender, subcylindrical, but little curved; length 0.6–0.65 mm., depth 0.095–0.105 mm. Fourth leg with elongate trochanter, length 0.45–0.5 mm., depth about 0.25 mm.; pars basalis relatively slender, flexor margin very weakly convex, length 0.4–0.45 mm., depth 0.24–0.255 mm.; pars tibialis subcylindrical, flexor margin almost straight to weakly concave, extensor margin very weakly convex, length 0.91–0.96 mm., depth 0.25–0.275 mm.; entire femur 1.2–1.3 mm. long, length 4.7 to 4.8 times the depth; tibia much like that of the first leg except longer and more slender, length 1.01–1.07 mm., depth 0.16–0.18 mm., length 6 to 6.3 times the depth; tarsus with general shape like that of the first leg, length 0.75–0.8 mm., depth 0.11–0.12 mm. length 6.6 to 6.9 times the depth; tarsus with a tactile seta little longer than the depth of the tarsus, acuminate, and located

distal to the midpoint of the podomere, 0.43–0.48 mm. from the proximal margin.

Genital complex: Very setaceous; each operculum with 40 to 50 setae.

FEMALE: Carapace and abdomen essentially like that of the male; length of body 4.65 mm.; carapace 1.3 mm. long, 1.15 mm. wide, the greatest width across the posterior margin; abdomen 3.35 mm. long, 2.2 mm. wide.

Chelicera: Like that of the male in most details; length 0.38 mm., width of base 0.21 mm.; movable finger 0.31 mm. long; serrula exterior of 20 to 21 plates; galea with five well-developed and simple terminal and subterminal rami; one chelicera has two rather than one terminally and subterminally denticulate subbasal setae located approximate to each other.

Palpus: Color and chaetotaxy as in the male; podomeres, however, much more slender. Maxilla 0.68 mm. long, 0.4 mm. wide. Trochanter with the subdorsal protuberance weaker than in the male; about 0.7 mm. long, 0.34 mm. wide in strict dorsal view. Femur with pedicle little longer than wide; margins as in the male; length 1.14 mm., width 0.365 mm. Tibia much more slender than in the male; outer margin flatly convex in the proximal three-fourths but more convex beyond; inner margin weakly convex in the proximal two-thirds, a weakly developed concavity beyond; length 1.12 mm., width 0.4 mm. Chela slender; pedicle displaced a little towards the outer surface; outer margin weakly convex, inner margin more convex and evenly rounded; fingers moderately slender, a little curved; length of chela without pedicle 1.8 mm., width 0.51 mm., length about 3.55 times the width; hand without pedicle about 0.95 mm. long, 0.47 mm. deep, the depth being less than the width; movable finger a little shorter than the hand, 0.92 mm. long. From the side, chela with pedicle displaced much towards the ventral side; ventral margin very weakly convex, dorsal margin a little more convex; hand almost rectangular in shape; fixed finger with outer margin weakly convex, inner margin virtually straight; movable finger nearly straight, margins much as in the opposing finger; chela not gap-

ping when the hand is closed. Each finger with 55 or more marginal teeth; fixed finger with 12 external and six internal accessory teeth; movable finger with 10 external and four internal accessory teeth; all teeth much weaker than in the male. Movable finger with tactile seta *t* considerably more than one-fourth but less than one-third of the finger length from the tip of the finger; *st*, *b*, and *sb* much as in the male, with *st* between two and two and one-half times as far from *sb* as from *t*; *nodus ramosus* as in the male. Fixed finger with *et* one-sixth to one-seventh of the finger length from the tip; *it*, *est*, and *ist* about as in the male; *esb* about two and one-half times as far from *est* as from *eb*; *ib* on the level of *esb* or a little distal, *isb* a little distal to *ib*; the pseudotactile seta proximal to *it* as in the male.

Legs: Very similar to those of the male but the femur of the fourth leg is weakly granular in the female. First leg with *pars basalis* 0.23 mm. deep; *pars tibialis* 0.185 mm. deep; entire femur 0.85 mm. long; tibia 0.64 mm. long, 0.13 mm. deep; tarsus 0.57 mm. long, 0.095 mm. deep. Fourth leg with trochanter and *pars basalis* as in the male; *pars tibialis* a little smaller, 0.89 mm. long, 0.24 mm. deep; tibia 0.96 mm. long, 0.16 mm. deep; tarsus 0.7 mm. long, 0.11 mm. deep; tactile seta of tarsus 0.4 mm. from the proximal margin of the tarsus.

Genital complex: Somewhat damaged in specimen but posterior operculum appears to have a row of about 18 setae while the anterior operculum has fewer setae than in the male.

TRITONYMPH: Description based on two tritonymphs; the measurements of one individual are given in parentheses following the measurements of the other individual whenever the two show significant differences. Smaller than the adult; much lighter in color; appendages stouter than in either the male or female except that the palpal chela is not so stout as in the male. Body length 3.15 (3.3) mm.; carapace yellow in color, about as in the adult, length about 0.95 mm., greatest width 0.78 (0.72) mm. and located across the

posterior margin. Tergites very little sclerotic, each tergal half of first tergite with six setae, maximum number of setae on any tergal half is nine; sternites much as in adult except fewer sternal setae; abdomen in general very lightly colored, ovate to elongate; anterior stigmatic plate with two or three setae, the posterior plate with one; length of abdomen 2.2 (2.4) mm., width 1.3 (1.4) mm.

Chelicera: Essentially like that of the female; length about 0.3 mm., width 0.18 (0.17) mm., movable finger about 0.27 (0.24) mm. long; serrula exterior of 17 to 20 plates; galea with five fairly well-developed terminal and subterminal rami.

Palpus: Yellowish brown or golden color; fairly stout; surface sculpturing and chaetotaxy much as in the adult. Femur with pedicle wider than long, outer margin flatly convex, inner margin convex except for a concavity near the distal end, length 0.75 (0.67) mm., width 0.305 (0.285) mm. Tibia with very stout pedicle; extensor margin flatly convex except near the distal end, flexor margin more convex and flattened in the distal portion; length 0.75 (0.67) mm.; width 0.34 (0.31) mm. Chela with outer margin evenly convex, inner margin much more convex; pedicle very stout and displaced a little towards the outside; fingers slender, a little curved; length of chela without pedicle 1.3 (1.2) mm., width 0.405 (0.385) mm.; chelal hand without pedicle 0.68 (0.64) mm., depth 0.425 (0.375) mm.; movable finger 0.66 (0.64) mm. long. From the side, chela fairly stout; pedicle displaced far towards the ventral side; ventral margin evenly but weakly convex, dorsal margin well rounded and more convex; fingers fairly stout, the movable a little more curved than the fixed finger. Each finger with between 40 and 50 marginal teeth; much fewer accessory teeth than in the adult. Movable finger with three tactile setae: *t* about one-third of the finger length from the tip; *st* proximal to the midpoint of the finger and midway between *t* and the third seta (*sb* or *b?*), which is located in the basal one-sixth of the finger; *nodus ramosus* at the level of *t*. Fixed finger with *et* about one-sixth of the

finger length from the tip, *it* a little closer to *et* than the latter is to the finger tip; *est* proximal to the midpoint of the finger, *ist* wanting; subbasal and basal setae much as in the adult except *ib* on some chelae may be a little proximal to or on the level of *esb*.

Legs: Light yellow in color; virtually unsculptured; podomeres stouter than in the adult; setae as in the adult; outlines of podomeres resemble those of the adult except that all the tarsi become a little narrowed towards the distal end. Fourth leg with entire femur 0.85 (0.77) mm. long, 0.215 (0.213) mm. deep; tibia 0.67 (0.6) mm. long, 0.135 (0.12) mm. deep; tarsus 0.51 (0.48) mm. long, 0.105 (0.095) mm. deep; tactile seta of tarsus near the midpoint of the podomere, 0.245 (0.265) mm. from the proximal margin.

TYPE LOCALITY: From a collection made on March 4, 1906, by William M. Wheeler at Culebra, Virgin Islands. The collection consists of three males, one female, and two tritonymphs. In the same collection occurs the holotype of the new variety *D. magnificus superior*.

REMARKS: The large size of the palpal podomeres and the very slender fourth leg serve to separate *D. magnificus* from other species of the genus. The form seems somewhat closely related to *D. proximus*, new species, but differs by having longer and more slender pedal podomeres and a much more slender chela with a less bulging and more evenly rounded inner basal portion.

***Dinocheirus magnificus superior*,
new variety**

Figure 15

MALE: A single male specimen differing from the typical *D. magnificus* in the greater size of the appendages, the much stouter palpal chela with the movable finger about equal to and not longer than the hand, the more slender legs, and an additional one or two teeth on the inner margin of the fixed cheliceral finger. Critical measurements follow: body length 4.3 mm.; carapace 1.55 mm. long, 1.33 mm. wide; palpal femur 1.52 mm. long and 0.53 mm. wide; palpal tibia 1.48 mm.

long, 0.61 mm. wide; chela 2.5 mm. long, 1.05 mm. wide; chelal hand about 1.3 mm. long, 1.1 mm. deep; movable chelal finger about 1.3 mm. long; fourth leg with entire femur 1.45 mm. long and 0.295 mm. deep, tibia 1.25 mm. long and 0.19 mm. deep, tarsus 0.88 mm. long and 0.122 mm. deep; tactile seta of fourth pedal tarsus 0.55 mm. from the proximal margin of the podomere.

FEMALE: Unknown.

TYPE LOCALITY: Known only from the holotype in a collection made by William M. Wheeler at Culebra, Virgin Islands, on March 4, 1906.

REMARKS: In spite of the fact that the specimen described here is very closely related to *D. magnificus* and occurs in the same collection, it seems advisable to consider it a new variety, at least until additional specimens become available for study.

***Dinocheirus proximus*, new species**

Figures 16-18

MALE: Stout except the legs; carapace moderately dark brown, palpi reddish brown, abdomen and legs brown; length of body 4 mm. Carapace moderately granular; two weak eye spots; anterior end rounded; lateral margins convex; posterior margin weakly convex and with 10 marginal setae; investing setae fairly numerous, stout, terminally denticulate, not clavate; transverse furrows marked, the median one near the center of the carapace, the posterior transverse furrow closer to the posterior margin than to the median furrow; carapace widest near the center, a little less wide across the posterior margin; length of carapace 1.3 mm., greatest width 1.02 mm., posterior width 0.98 mm. Abdomen with tergites moderately granular, brown in color; divided except the eleventh, interscutal spaces wide and granular; each first tergal scutum with six setae, maximum number of setae on any half-tergite is 10; setae of tergites fairly stout and with terminal denticulations, not clavate. Sternites of the abdomen divided, interscutal spaces fairly wide and marked by wavy lines and granules; each fourth half-sternite with nine or 10 acuminate setae, central sternal halves

with a maximum of 13 or 14 setae; surface of sternites fairly granular, brown in color, with numerous microlyrifissures; anterior stigmatic plate with three small acuminate setae, each posterior plate with one; pleural membranes with wavy striations, somewhat rugose; length of abdomen 2.7 mm.; greatest width about 1.7 mm.

Chelicera: Moderately stout, fairly dark yellow; dorsal surface of base well marked with net-like lines; subbasal seta terminally bifid and with a minute subterminal denticulation, exterior seta almost as long as the basal seta; flagellum with the two anterior setae blade-like, flattened, and unilaterally serrate; length of chelicera 0.37 mm., width of base about 0.21 mm.; length of movable finger 0.34 mm. Fixed finger moderately slender; apical tooth with three denticles on the inner surface; six or seven retro-conical teeth along the distal one-half of the fixed finger margin; prominent external lamina exterior extending along the base of the chelicera; serrula interior as in *D. magnificus mihi*. Movable finger little curved; apical tooth sclerotic; subapical lobe large, finger-like, and located at the very base of the apical tooth; two minute denticles on the inner finger margin at about the level of the insertion of the galeal seta; galeal seta extending to about the tip of the galea; galea relatively small and slender, tip with two small rami, in addition one or two weak rami subterminally located at or beyond the mid-point of the galea; serrula exterior with 21 or 22 ligulate plates.

Palpus: Moderately stout to stout, hand relatively stouter than other podomeres; maxilla (except ventral face), trochanter, and femur, the flexor surface of the tibia, and the external surface of the chelal fingers finely granular, otherwise almost smooth; setae of ventral surface of maxilla acuminate, chiefly paucidentate on other podomeres except acuminate on the chelal fingers; the setae of the proximal podomeres more stout and with more denticulations than the setae of the more distal podomeres. Maxilla about 0.65 mm. long, 0.41 mm. wide. Trochanter with the subdorsal protuberance better developed than the sublateral one; flexor

margin evenly convex; length 0.7 mm., width 0.42 mm. Femur with pedicle about as long as wide and well set off from the rest of the podomere; flexor margin nearly straight except for a very weak concavity in the distal one-third; extensor margin flatly convex in the basal two-thirds; length of femur 1.1 mm., width 0.4 mm. Tibia with flexor surface moderately convex except for a slight concavity near the distal end; extensor margin weakly convex except for an angulation towards the distal end; length 1.12 mm., width 0.45 mm. Chela stout; pedicle placed far towards the outer side; basal margin weakly concave, with a decided exterio-basal projection; extensor margin weakly convex; flexor margin much more convex, the basal-flexor portion being greatly swollen and convex; hand tapering rapidly towards the moderately slender finger; the fixed finger little curved, the movable finger much more curved; fingers gapping when closed; length of chela without pedicle 2 mm., width 0.9 mm.; length of chelal hand without pedicle 0.98 mm.; depth but little greater than width, 0.93 mm.; movable finger longer than length of hand without pedicle, 1.1 mm. From the side, chelal hand subtriangular, being greatly swollen in the dorso-basal portion; pedicle far removed towards the ventral margin; dorsal margin proximally convex, very weakly convex in the distal half; ventral margin nearly straight; fixed finger almost straight, both inner and outer margins very weakly convex; movable finger less stout, outer margin convex, inner margin more concave in the basal than in the distal portion. Fixed finger with probably about 50 small, conical, marginal teeth (position of hand on slide and deep color of fingers preclude an exact count), 10 or 11 internal and about the same number of external accessory teeth; movable finger with the marginal teeth about as those of the opposing finger, eight internal accessory and nine external accessory teeth; many of the external accessory teeth grouped near the center of the finger margin; nodus ramosus of the movable finger just proximal to the level of the areole of tactile seta *t*. Fixed finger with *et* about one-eighth of the finger

length from the tip; *it* closer to *et* than the latter is to the finger tip; *est* a little distal to the midpoint of the finger, *ist* distal to the level of *est* by about one-half of the finger width at the level of *ist*; *eb* and *esb* separated by about three areolar diameters; *ib* and *isb* very close together and little distal to the level of *esb*. Movable finger with *t* in the distal one-third of the finger length, *sb* about one-fifth of the finger length from the base; *b* midway between *sb* and the proximal finger margin; *st* over twice as far from *sb* as from *t*.

Legs: Slender; yellowish brown in color. First leg with surface of podomeres very weakly sculptured, chiefly with scale-like markings; setae of the flexor surface of podomeres subacuminate to acuminate, those of the extensor surface chiefly paucidentate; trochanter 0.27 mm. long, 0.22 mm. deep; pars tibialis of femur with flexor margin nearly straight, extensor margin weakly convex; depth of pars basalis 0.24 mm., depth of pars tibialis 0.19 mm.; entire femur 0.8 mm. long; tibia weakly S-shaped, length 0.63 mm., depth 0.135 mm.; tarsus subcylindrical, 0.56 mm. long, 0.098 mm. deep. Fourth leg with weak scale-like sculpturing, setae much as in the first leg; trochanter with extensor margin weakly concave, about 0.43 mm. long, 0.24 mm. deep; pars basalis with flexor margin nearly straight and continuous with the flexor margin of the pars tibialis, length measured along the flexor margin 0.37 mm., depth 0.23 mm.; pars tibialis very slender, extensor margin very weakly convex, length 0.78 mm., depth 0.243 mm.; length of entire femur 1.05 mm.; tibia very weakly S-shaped, length 0.94 mm., depth 0.164 mm.; tarsus subcylindrical, length 0.65 mm., depth 0.117 mm.; tactile seta of fourth pedal tarsus with a length less than twice the depth of the podomere and located distal to the midpoint, 0.37 mm. from the proximal margin.

Genital complex: Posterior operculum with numerous scattered setae, possibly about 40, but many broken and an accurate count is impossible; anterior operculum with about the same number of setae forming a more or less compact group anterior to the genital aperture.

FEMALE: Unknown.

TYPE LOCALITY: A single male, the holotype, from a collection made by A. M. and L. I. Davis, 2 miles east of Santo Domingo, San Luis Potosí, Mexico, on June 6, 1941.

REMARKS: The present species differs from the related *D. magnificus*, new species, and *D. aequalis* (Banks, 1908) as indicated under the descriptions of these species.

Dinocheirus aequalis (Banks, 1908)

Roewer, 1937

Figures 19-22

Chelanops aequalis BANKS, 1908, Bull. Wisconsin Nat. Hist. Soc., new ser., vol. 6, p. 41; *Epaphochernes aequalis* BEIER, 1932, Das Tierreich, vol. 58, p. 174; *Dinocheirus aequalis* ROEWER, 1937, in Bronn, H. G., Die Klassen und Ordnungen des Tierreichs, vol. 5, div. 4, book 6, no. 2, p. 302.

MALE: The present description of the previously undescribed male is based on a study of three individuals. Body stout; abdomen and legs light brownish yellow in color, carapace a little darker, palps golden in color; length about 3.25 to 3.5 mm. Carapace stout, lateral margins convex, widest across the center; median furrow well marked and a little posterior to the midpoint of the carapace, the posterior furrow about midway between the median furrow and the posterior carapacial margin or a little closer to the posterior margin; two weakly developed eye spots; carapace moderately granular; setae terminally multidentate and subclavate, some almost clavate; posterior margin of carapace with nine or 10 setae; length of carapace 1.1 to 1.15 mm.; greatest width between 0.9 and 1 mm., posterior width a little less. Tergites of abdomen except the eleventh divided; interscutal spaces granular; scutae nearly as coarsely granular as the carapace; setae as on the carapace; each of the first tergal halves with five to seven setae; maximum number of setae on any half-tergite is eight. Sternites except the eleventh divided; medial interscutal spaces striate; each fourth half-sternite with four to six setae; maximum number of setae on any half-sternite is 13, all setae acuminate; sternal scutae finely granular; each anterior stigmatic plate with three (in some individuals apparently only two) small and

acuminate setae, each posterior plate with one seta; pleural membranes with rugose or papillose striations; abdomen ovate in shape, length 2.1 to 2.3 mm., width about 1.5 mm.

Chelicera: Fairly stout; yellow in color; base with well-marked, net-like sculpturing; the two longer flagellar setae unilaterally serrate, the distalmost one with numerous fine serrations along the distal half of the anterior margin, the next more proximal one with only one or two very fine denticulations; subbasal seta with very minute denticulations, two or three terminal and one subterminal; other setae of base acuminate; length of chelicera between 0.33 and 0.36 mm., width of base 0.18–0.2 mm.; length of movable finger 0.29–0.32 mm. Fixed finger slender especially in the distal half; lamina exterior very convex and extending to meet a carina along the base of the chelicera; apical tooth sclerotic, with three (sometimes four) small rounded denticles on the inner surface; distal one-half of the inner finger margin with six retro-conical denticles; serrula interior as in the preceding species. Movable finger relatively stout and straight, in general as in *D. proximus*, new species; serrula exterior of 20 to 23 ligulate plates; galea with two terminal and two or three minute subterminal rami.

Palpus: Ventral surface of maxilla almost smooth, finely granular on the sides; trochanter, femur, flexor surface of tibia, and the chelal hand approximate to the chelal finger moderately (sometimes finely) granular; the extensor surface of the tibia, the basal part of the chelal hand, and the fingers finely granular, sometimes almost smooth; setae widened and with several denticulations on the extensor side of the trochanter and on the flexor surface of the femur and tibia; setae of the rest of palp paucidenticulate except acuminate on the maxilla and the chelal fingers; entire palp of a moderately dark golden color. Maxilla with a short apical seta and a longer subapical seta on the apical process, as well as two or three much shorter setae; length of maxilla nearly 0.62 mm., width about 0.4 mm. Trochanter with extensor margin evenly and markedly convex; subdorsal

protuberance more elevated than the sub-lateral protuberance; length 0.61–0.64 mm., width 0.35–0.38 mm. Femur with pedicle about as long as wide, well set off from the rest of the podomere; sides of femur subparallel; flexor margin moderately convex in the basal two-thirds, weakly concave beyond; the extensor margin flatly convex in the proximal two-thirds, a little more convex beyond; length about 0.95–1.05 mm., width 0.35–0.37 mm.; length 2.7 to 2.8 times the width. Tibia with extensor surface much more weakly granular than the flexor surface; pedicle about as wide as long; extensor margin flatly convex in the basal two-thirds, more convex beyond; flexor margin decidedly convex but not greatly bulging in the basal two-thirds, markedly concave beyond; length 0.95–1.02 mm., width 0.4–0.42 mm.; length 2.4 to 2.45 times the width. Chela stout; extensor margin evenly and markedly convex; flexor margin more convex, passing into the convex basal margin without interruption; basal-flexor portion of the hand much swollen; pedicle displaced very far towards the extensor side; hand narrowed rapidly toward the fingers; fingers moderately slender, little curved; length of chela without pedicle about 1.6–1.75 mm., width of chela 0.67–0.75 mm.; length of chela 2.3 to 2.45 times the width; length of hand without pedicle 0.82–0.88 mm.; depth of hand 0.71–0.8 mm.; length of movable finger between 0.9 and 0.95 mm. From the side, chela appears stout; ventral margin little convex; dorsal margin markedly convex and passing without interruption into the concave basal margin; pedicle displaced far towards the ventral side; fixed finger relatively straight; movable finger gently curved. Fixed finger with 50 to 55 conical, cusp-bearing, contiguous teeth extending along almost the entire finger margin and as well developed at the proximal as at the distal end of the row; eight to 11 internal accessory teeth in the distal half of the finger; five to 10 well-spaced external accessory teeth. Movable finger with marginal and accessory teeth similar to those of the fixed finger except the internal accessory teeth are sometimes

arranged in widely separated groups. Tactile setae of movable finger with *t* somewhat more than one-fourth of the finger length from the tip; *sb* between one-fourth and one-fifth of the finger length from the proximal margin of the finger; *b* about two areolar diameters proximal to *sb*; *st* approximately twice as far from *sb* as from *t*; nodus ramosus between *st* and *t*, either a little nearer to *st* or a little nearer to *t*. Fixed finger with *et* about one-seventh or one-eighth of the finger length from the tip, this distance being a little less than the width or equal to the width of the finger at the level of *et*; *it* a little closer to the level of *et* than *et* is to the finger tip; *est* near the midpoint of the finger or somewhat distal to the midpoint; *ist* usually a little distal, sometimes a little proximal to *est* (showing this variation in the two palps of one individual): *est* is closer to *esb* than to *et*; *esb* about three areolar diameters from *eb*; *isb* and *ib* on a level little distal to the level of *esb*.

Legs: Slender, yellow in color; trochanter and pars tibialis of each leg finely granular, tibia and tarsus with very weak scale-like markings and often almost smooth; setae of the extensor surface of podomeres and the flexor surface of the pars tibialis of each leg paucidenticulate; setae of pedal podomeres otherwise acuminate. First leg with trochanter stout, about 0.25 mm. long, 0.19–0.21 mm. deep; pars basalis 0.2–0.225 mm. deep; pars tibialis with the extensor margin weakly convex, the flexor margin less convex, sometimes virtually straight, depth 0.17–0.19 mm.; entire femur 0.7–0.75 mm. long; tibia a little S-shaped, 0.54–0.61 mm. long, 0.12 mm. deep; tarsus with the flexor margin very little convex, the extensor margin very little concave, 0.51–0.54 mm. long, 0.087–0.09 mm. deep. Fourth leg with flexor margin of the pars basalis very little convex to virtually straight, length 0.33–0.34 mm., depth 0.21–0.23 mm.; pars tibialis with the extensor margin weakly convex, flexor margin virtually straight, length 0.66–0.74 mm., depth 0.23–0.25 mm.; entire femur 0.91–0.97 mm. long, 0.23–0.25 mm. deep; tibia very little S-shaped, the flexor margin weakly convex,

the extensor margin very weakly concave, length 0.77–0.85 mm., depth about 0.15 mm., length 5.2 to 5.7 times the depth; tarsus subcylindrical, length 0.6–0.64 mm., depth about 0.1 mm., length 5.9 to 6.4 times the depth; tarsus with a tactile seta as long as about twice the depth of the tarsus, situated distal to the midpoint of the extensor surface, 0.33–0.35 mm. from the proximal margin.

Genital complex: Posterior operculum with about 25 setae scattered on the face of the operculum and in addition five or six setae on the posterior rim of the genital aperture; anterior operculum with nearly 35 setae in a group anterior to the aperture.

FEMALE: Very similar in most details to the male except that the chelal hand is less stout. The single female agrees very closely with the female lectotype and co-type¹ deposited at the Museum of Comparative Zoölogy, the chief differences being the lighter color, the more rounded lateral margin of the palpal femur, and the more flatly convex flexor margin of the pars tibialis of the first leg in our specimen from Mexico. Some measurements of the present specimen follow: body length 3.5 mm.; carapace 1.2 mm. long; palpal femur 1.01 mm. long, 0.375 mm. wide; tibia 1.02 mm. long, 0.415 mm. wide; chela without the pedicle about 1.7 mm. long, 0.61 mm. wide; chelal hand without pedicle 0.88 mm. long, 0.64 mm. deep; movable finger of chela 0.91 mm. long; first leg with entire femur 0.77 mm. long and 0.215 mm. deep, tibia 0.59 mm. long and 0.13 mm. deep, tarsus 0.56 mm. long and 0.087 mm. deep; fourth leg with entire femur 1.02 mm. long and 0.235 mm. deep, tibia 0.86 mm. long and 0.152 mm. deep, tarsus 0.65 mm. long and 0.103 mm. deep; tactile seta of fourth pedal tarsus located 0.37 mm. from the proximal margin of the tarsus; galea of female chelicera with five or six long but simple lateral and terminal rami confined to a little more than the distal one-half of the galea.

TRITONYMPH: Description based on two individuals; wherever the measurements of one are distinctly different from the cor-

¹ Descriptions of these type specimens are to appear soon in a paper by the present writer.

responding measurements of the other individual, the measurements of the second individual are given in parentheses. Body similar in general to the adult but smaller and lighter in color; length of body 2.1 (3.0) mm.; carapace 0.83 (0.88) mm. long, 0.68 mm. wide; chaetotaxy and other details much as in the adult except fewer setae present. Tergites with very wide intertergal spaces, these being granular; maximum number of setae on any half-tergite is seven; scuta less sclerotic than those of the adult. Sternites with the maximum number of 11 setae on any half-sternite; anterior stigmatic plate with two setae, posterior plate with one; pleural membranes very rugose.

Chelicera: Very similar to that of the adult female except smaller in size; length about 0.27 mm., width of base about 0.15 mm.; movable finger between 0.22 and 0.23 mm. long; serrula exterior of 18 or 19 plates; galea with five well-developed rami confined to about the distal one-half of the galea.

Palpus: Color, chaetotaxy, and sculpturing much as in the adult although the granulations may be relatively a little coarser than in some adults; podomeres except the chela much stouter than in the adult. Femur with a pedicle wider than long, outer margin flatly convex, inner margin weakly convex except at the ends, length about 0.6 mm., width about 0.27 mm., length 2.25 times the width. Tibia with very stout pedicle, both flexor and extensor margins more or less convex, the flexor much more so than the extensor; length 0.61 mm., width 0.29 (0.305) mm.; length 2.1 (2) times the width. Chela smaller and with stouter pedicle, otherwise much like that of the female; length 1.05 (1.07) mm., 2.8 times the width; depth of chelal hand a little more than the width; length of chelal hand 0.51 (0.53) mm.; movable finger 0.545 (0.57) mm. long. From the side, the chela of the tritonymph is almost identical in general outline with that of the female. Movable finger with three tactile setae: *t* a little more than one-third of the finger length from the tip; a second seta, no doubt *st*, a little closer to *t* than the latter is to the finger tip; a third

seta, probably *b*, located about one-seventh of the finger length from the proximal margin; nodus ramosus at the level of the proximal margin of the areole of tactile seta *t*. Fixed finger with *it* a little less than one-third of the finger length from the finger tip, *et* on a level about midway between *it* and the finger tip; *est* about at the midpoint of the finger; *eb*, *esb*, *ib*, and *isb* much as in the adult; *ist* wanting. Movable finger with about 40 marginal teeth, four or five external and two to five internal accessory teeth; teeth of the fixed finger much like those of the movable finger.

Legs: Much smaller, stouter, and lighter in color than those of the adult; almost unsculptured; chaetotaxy much as in the adult; shape of podomeres except the tarsi similar in a very general way to those of the adult. First leg with pars basalis 0.152 (0.159) mm. deep; pars tibialis 0.133 (0.137) mm. deep; entire femur 0.48 (0.5) mm. long; tibia 0.345 (0.36) mm. long, 0.094 (0.095) mm. deep; tarsus tapering somewhat towards the distal end, length 0.36 mm., depth 0.076 mm. Fourth leg with entire femur 0.66 (0.68) mm. long, 0.182 (0.19) mm. deep; tibia 0.53 (0.55) mm. long, 0.114 (0.121) mm. deep; tarsus narrowing a little towards the distal end, length 0.43 mm., depth 0.09 mm.; position of tactile seta of fourth tarsus variable, 0.17 (0.22) mm. from the proximal margin of the tarsus.

LOCALITY RECORDS: This species is represented in three of the American Museum collections. One male was taken in a collection by L. I. Davis near Mexcala, Guerrero, Mexico, on July 2, 1941. Another male was found in a collection made by A. M. and L. I. Davis near Los Patos pond, southeast of Zacatecas, Zacatecas, Mexico, on December 29, 1943. The third collection, consisting of a male, a female, and two tritonymphs, was made by A. M. and L. I. Davis 2 miles east of Santo Domingo, San Luis Potosí, Mexico, on June 6, 1941.

REMARKS: The present species bears relationship to several other species of the genus *Dinocheirus*. It is very similar to *D. proximus*, new species, but separation

may be made on the basis of the following characteristics of *D. aequalis*: the nodus ramosus of the movable finger is removed some distance proximal to the tactile seta *t*; the palps are lighter in color and have coarser granulations; the movable finger of the chela is more evenly curved near the center; the palpal femur is less cylindrical than in *proximus*; and the baso-dorsal portion of the chelal hand is more rounded in lateral view. Separation of *D. aequalis* may be made from *D. magnificus*, new species, by the much stouter palpal and pedal podomeres. The form is also related to *D. obesus* (Banks, 1909) from which it may be separated by the more slender palpal femur and tibia of *aequalis* as well as the shape of the chelal hand when viewed from the side.

FAMILY CHELIFERIDAE HAGEN, 1878

Subfamily **Withiinae** Chamberlin,
1931

Tribe **Cacodemonini** Chamberlin,
1931

Cacodemonius quartus, new species

Figures 23-26

MALE: Body slender, elongate; both body and legs light brown in color; length of body 2.2 mm. Carapace with surface coarsely granular; setae scattered, stout, short, clavate; median transverse furrow well marked and about in the center of the carapace; posterior furrow twice as far from the median furrow as from the posterior carapacial margin; anterior half of carapace with rounded margin; posterior half with nearly straight lateral margins; carapace slightly wider across the posterior margin than across the carapace at the level of the median furrow; eye spots present; posterior margin of the carapace distinctly serrate, with eight to 10 clavate marginal setae; length of carapace 0.77 mm., posterior width 0.6 mm. Abdomen with tergites about as coarsely granular as the carapace; tergites with distinct lateral keels except in the posterior three or four tergites; tergite 1 and 2 apparently not divided, tergites 3 through 5 weakly divided, tergites 6 through 10 clearly di-

vided, tergite 11 with indistinct suture; each first and second tergite with 10 to 12 clavate setae; central tergal halves with a maximum of nine setae, the medial, central, and lateral setae anterior to the others; posterior margin of anterior and central tergites markedly serrate, tergites 8 and 9 with few serrations confined to the medial part of the margin, tergites 10 and 11 without serrations. Sternites weakly marked by net-like lines but not distinctly granular except at the outer ends, about the same color as the tergites, not divided; sternal setae very fine, relatively long, acuminate; numerous very small microlyrifiures on each sternite; sternites with no more setae than the corresponding tergites; large median area invested by small setae on sternites 8 and 9; other sternites normal; each anterior stigmatic plate with one seta, each posterior plate with two; pleural membranes marked by fine parallel striations; length of abdomen 1.45 mm., width equal to about one-half of the length.

Chelicera: Yellow in color; fairly stout; base with net-like markings on dorsal surface; subbasal seta long, flattened throughout its length, terminally and subterminally denticulate; basal seta very short, not so stout, tapering distally, with very minute denticulations; exterior seta acuminate and much longer than the basal seta; flagellum not in a position for study; length of chelicera 0.21 mm., width of base about 0.12 mm.; movable finger about 0.16 mm. long. Fixed finger fairly stout, a little bent near the center; apical tooth with three blunt denticles on the inner surface, the inner finger margin with three relatively large retro-conical teeth in the distal one-third of the margin; lamina exterior well developed; serrula interior with the distal four plates free and serrate, the distalmost of the four spine-like, the other three platyform. Movable finger a little curved; apical tooth bicuspid or tricuspid; subapical lobe much smaller than the apical tooth and located distal to the insertion of the galeal seta; two conical teeth on the inner finger margin at about the level of the insertion of the galeal seta; galea almost simple, with two or three

terminal and subterminal denticulations; galeal seta reaching to about the tip of the galea; serrula exterior consisting of 17 or 18 ligulate plates.

Palpus: Golden yellow in color; coarsely granular except on the chelal fingers; setae of maxilla short and acuminate; setae of trochanter, femur, and flexor surface of tibia distinctly clavate; setae of extensor surface of tibia and the chelal hand paucidenticate; setae of chelal fingers acuminate. Maxilla 0.38 mm. long, 0.225 mm. wide. Trochanter with two protuberances, the subdorsal one more bulging than the sublateral one; length of trochanter about 0.35 mm., width in dorsal view 0.2 mm. Femur relatively slender; pedicle about as wide as long and well set off from the rest of the femur; flexor margin weakly convex in the basal one-half, very weakly concave beyond; extensor margin flatly convex in the center, more convex near the two ends; femur widest in the distal one-half; length 0.61 mm., width 0.185 mm. Tibia relatively slender; pedicle about as long as wide or a little longer than wide; extensor margin more or less evenly convex, except a little flatly so in the middle portion; flexor margin bulging near the center, a little concave beyond; length 0.59 mm., width 0.228 mm. Chela fairly stout; pedicle near the center of the base; the flexor margin a little convex, the extensor margin slightly more convex; fingers moderately slender, a little curved; length of chela without pedicle 0.88 mm., width 0.32 mm.; chelal hand without pedicle 0.42 mm. long, depth 0.29 mm.; length of movable finger about 0.48 mm., slightly exceeding the length of the hand without the base. From the side, chelal hand is stout; pedicle near the center of the base; both ventral and dorsal margins weakly convex; fingers slender; fixed finger a little curved, the movable finger much more curved; chela gapping when fingers are closed. Marginal teeth of distal one-half of fixed finger and the distal one-fourth of the movable finger contiguous and with cusps; teeth vestigial, very few, and widely spaced on the proximal portion of each finger; movable finger with 12 contiguous teeth, about eight

vestigial ones; fixed finger with 19 well-developed teeth, two to four vestigial ones. Movable finger with four tactile setae: *t* within the distal one-third of the finger; *sb* about one-fifth of the finger length from the base, *b* about one areolar diameter proximal to *sb*; *st* a little proximal to the midpoint of the finger and a little closer to *t* than to *sb*; nodus ramosus about one areolar diameter basal to tactile seta *t*. Fixed finger with *et* within the distal one-fifth of the finger length; *it* a little farther from *et* than the latter is from the finger tip; *est* near the midpoint of the finger with *ist* on a level about one areolar diameter distal to *est*, and *it* on a level less than two areolar diameters distal to *ist*; in other words, *it*, *ist*, and *est* form a group just distal to the midpoint of the finger; *esb* and *eb* at base of finger and separated one from the other by about two areolar diameters; *ib* and *isb* on about the same level and near the level of *esb*; position of nodus ramosus difficult to distinguish with certainty but probably at a point nearly on a level with tactile seta *ist*.

Legs: Stout; yellow to yellowish brown; granular, the femora and tibiae coarsely so, the tarsi with weaker scale-like sculpturing; setae of the flexor surfaces of podomeres paucidenticate to acuminate, chiefly the latter; setae of the extensor surfaces of podomeres multidenticate on the first leg, distinctly clavate on the fourth leg; terminal claws simple. Femur of first leg with pars tibialis stout, the flexor margin weakly convex, the extensor margin much more convex, depth 0.155 mm.; length of entire femur 0.42 mm.; tibia stout, flexor margin much convex, extensor margin very weakly concave, length 0.32 mm., depth 0.1 mm.; tarsus with nearly straight margins, tapering a little towards the distal end, length 0.29 mm., depth 0.068 mm. Fourth leg with trochanter 0.225 mm. long, 0.145 mm. deep; pars basalis triangular, length 0.19 mm., depth 0.15 mm.; pars tibialis with flexor margin very weakly convex, extensor margin suddenly widened at the base producing a definite angle, moderately convex beyond the angle, length 0.51 mm., depth 0.23 mm.; entire femur 0.61 mm. long;

tibia with extensor margin nearly straight except basally, flexor margin bulging and evenly convex, length 0.455 mm., 0.133 mm. deep; tarsus subcylindrical, very little narrowed distally, length 0.35 mm., depth 0.076 mm.; no tactile seta on the fourth tarsus.

Genital complex: Very simple, much as pictured for *C. cactorum* by Chamberlin (1923, pl. 1, fig. 7); anterior operculum with about 12 weakly developed setae; posterior operculum little modified and with a few fine marginal setae.

FEMALE: Measurements of the allotype are followed by measurements of the female paratype whenever the two show significant difference. Carapace much as in the male; 10 to 12 setae along the posterior margin; posterior margin not serrate; posterior portion of lateral margins almost parallel; length of carapace 0.75 mm., width 0.54 (0.6) mm.; length of entire body 2 (2.1) mm. Tergites less deeply pigmented than in the male; posterior margin of tergites smooth, no lateral keels present; all tergites including the eleventh divided, the first and second may or may not be less markedly divided than the others; each tergal half of first tergite with five to seven setae; each tergal half of the second tergite with seven or eight setae; half-tergites of central part of abdomen with as many as 10 setae, arranged as in the male. Sternites appear to be incompletely divided; sternites less granular and pleural membranes more rugose than in the male; chaetotaxy and stigmatic plates as in the opposite sex; length of abdomen about 1.3 mm., width 0.8 (0.88) mm.

Chelicera: Almost identical with the chelicera of the male except the galea is relatively much larger and has six or seven small finger-like rami at and near the distal end; galeal seta reaching only to about the midpoint of the galea; length and width of chelicera as in the male; length of movable finger 0.15 mm.; flagellum of four setae, the distalmost one unilaterally serrate.

Palpus: Like that of the male except the palpal femur has fewer conspicuous clavate setae on the more nearly straight

inner margin and the extensor or outer margin of the tibia is a little more flattened; length of maxilla 0.37 (0.38) mm., width about 0.21 mm.; trochanter 0.32 mm. long, about 0.18 mm. wide; femur 0.575 (0.585) mm. long, 0.165 (0.175) mm. wide; tibia 0.545 (0.56) mm. in length, 0.203 (0.215) mm. in width; chela 0.8 (0.82) mm. long without the pedicle, 0.265 (0.293) mm. wide; length of hand 0.4 (0.41) mm., depth of hand 0.255 (0.265) mm.; length of movable finger 0.43 mm. From the side, chela as in the male except fingers are a little stouter and not so curved; chela less gapping when closed. Fixed finger with about 30 and movable finger with about 35 teeth, these are conical and have acute cusps at the distal end of each row but are rounded and sometimes even acuspid at the proximal end of the row; teeth contiguous and arranged along nearly the entire margin of each finger. Movable finger with tactile setae much as in the male except *st* is about two-thirds as far from *t* as from *sb*; fixed finger with tactile setae as in the male except *ist* is more nearly on a level with *est* and sometimes the two are on the same level.

Legs: Essentially like those of the male except the pars tibialis of the fourth leg is not so suddenly deepened near the base and the juncture of the basal and the extensor margins is rounded and not angular. First leg with entire femur 0.39 (0.4) mm. long, 0.137 (0.14) mm. deep; tibia 0.29 (0.3) mm. long, 0.09 mm. deep; tarsus 0.3 (0.29) mm. long, 0.063 (0.065) mm. deep. Fourth leg with pars tibialis 0.46 (0.47) mm. long, 0.205 (0.22) mm. deep; entire femur 0.56 (0.57) mm. long; tibia 0.44 (0.45) mm. long, 0.118 (0.125) mm. deep; tarsus 0.35 mm. long, 0.075 (0.076) mm. deep.

Genital complex: Simple; posterior operculum with 10 to 12 acuminate setae; anterior operculum with (as near as can be determined) about 14 very weak setae; a somewhat large median cribiform plate present as well as a smaller lateral plate removed some distance to each side of the median plate.

TYPE LOCALITY: The male holotype, the female allotype, and one female para-

type from La Zacualpa, Chiapas, Mexico; the collection made in August, 1909, by A. Petrunkevitch.

REMARKS: This species is very close to *C. cactorum* (Chamberlin, 1923) from which it is separated on the basis of the much less slender male (female of *C. cactorum* unknown) palpal femur which is not subrectangular as in *C. cactorum* (Chamberlin, 1923, pl. 2, fig. 14) but is somewhat narrower in the proximal part and has a more convex outer margin. In addition, there is little superficial appearance of the presence of setae fields on sternites 3 to 7 as indicated by Chamberlin (1923) for *C. cactorum*. When collections become available from other localities, there is a possibility that transition forms will be found between these two species, in which case *quartus* will become a synonym of *cactorum*.

Subfamily Cheliferinae Simon, 1879

Tribe Cheliferini Chamberlin, 1932

CUBACHELIFER, NEW GENUS

DIAGNOSIS: Coxal sac present in coxa IV of the male; subterminal seta of tarsus IV simple; tarsal spur present at the end of the tarsus of leg I of male; one claw of first leg and both claws of second leg in male (female unknown) unequally bifid; tergites of the male with lateral keels; coxal spur present on the fourth coxa of the male; the medial portion of the fourth coxa with a cavity unlined by the coxal sac and having the general appearance of being a small atrium; statumen convolutum typical, deeply invaginated at the anterior end, with a medial sclerotic rod. A single species, the genotype, known.

GENOTYPE: *Cubachelifer strator*, new species.

REMARKS: The genus *Cubachelifer* is related by the simple subterminal setae on the pedal tarsi to the genus *Idiochelifer* Chamberlin, 1932, from North America, and to the genus *Metachelifer* Redikortzev, 1938, from French Indo-China. Both of these genera, however, lack the tarsal spur evident on the first leg of the male of *Cubachelifer*.

Cubachelifer strator, new species

Figures 27-29

MALE: Body somewhat slender; light to dark yellowish brown in color, the palps darker than the body and legs; length 2.75-3.5 mm. Carapace slender, sides weakly convex, anterior end more convex; the median transverse furrow near the center, the posterior furrow twice as far from the median furrow as from the posterior carapacial margin; posterior margin with a weak keel at each end resembling those of the tergites; surface granular with numerous sclerotic tubercles on the sides; setae neither conspicuous nor numerous, each seta slender but a little widened towards the distal end, subclavate, terminally denticulate; posterior margin with 10 to 12 setae; eyes fairly well developed; carapace widest across the posterior margin; length 1-1.15 mm., greatest width 0.95-1.1 mm., ocular width (measured across the carapace at the posterior margin of the eyes) 0.5-0.55 mm. Tergites including the eleventh divided by a narrow suture; granular; tergal halves 1 to 6 or 8 with a spur or keel at the outer end, spur-like especially in the anterior tergites; setae weakly clavate; each half of tergite 1 with seven or eight setae, maximum number of setae on tergal halves of central part of abdomen is 11. Sternites less sclerotic and less granular than the tergites; sternites weakly divided; setae acuminate and about as many in number as on the tergites; each fourth sternal half with four to seven setae. Pleural membranes with wavy striations; anterior stigmatic plate without setae, the posterior plate with one; length of abdomen 1.75-2.4 mm. (contracted to varying extent in different individuals), width 1.3-1.5 mm.

Chelicera: Fairly stout; light yellow in color; base with net-like lines on the dorsal surface; all five setae simple; length of chelicera 0.25-0.27 mm., width of base 0.14-0.17 mm.; length of movable finger 0.2-0.23 mm. Fixed finger gently curved, inner surface of apical tooth with three rounded denticles; distal portion of inner margin of finger with three well-developed retro-conical denticles; serrula interior with distal four plates free and serrate.

Movable finger little curved; apical tooth sclerotic, bicuspid; subapical lobe stout; finger margin with one or two small denticles near the level of the insertion of the galeal seta; galea small, with three or four minute subterminal and terminal denticulations; galeal seta reaching far beyond the tip of the galea; serrula exterior of 17 to 20 ligulate plates.

Palpus: Slender, golden brown color; surface coarsely to moderately granular except on the ventral surface of the maxilla and on the chelal fingers; setae of maxilla and the chelal fingers generally acuminate, the setae of the trochanter and the flexor surface of the femur and tibia multi-denticulate and subclavate, setae of the extensor surface of the femur and tibia paucidenticulate, those of the chelal hand subacuminate; the subclavate setae often inserted on tubercles raised above the level of the surface or investing granulations. Maxilla with two long setae at the end of the apical process, length between 0.5 and 0.56 mm., width about 0.32 mm. Trochanter stout, pedicle very well set off from the rest of the podomere; lateral protuberance rounded and not well developed; subdorsal protuberance subconical in shape, elevated, almost triangular in profile, a few very conspicuous conical tubercles on the outer surface of the protuberance; length of trochanter between 0.53 and 0.62 mm., width between 0.335 and 0.41 mm. Femur very slender; pedicle poorly defined and a little wider than long; extensor margin flatly convex, but more convex at the ends; flexor margin a little concave; length 1.15–1.26 mm., width 0.235–0.255 mm.; depth 4.9 to 5.2 times the width. Tibia much shorter than the femur and much less slender; weakly developed pedicle about as wide as long; extensor margin very flatly convex except at the distal end; flexor margin weakly convex, a little concave or straight near the distal end; length 0.98–1.09 mm., width 0.28–0.31 mm.; length 3.5 to 3.6 times the width. Chela slender; not so coarsely granular as the tibia; pedicle near the center of the base; both extensor and flexor margins weakly and evenly convex, the flexor usually a little more convex than the ex-

tensor; hand narrowly oval in general outline; fingers slender and gently curved; length of chela without the pedicle 1.62–1.78 mm., width 0.44–0.55 mm.; length of chela 3.7 times the width in the holotype and in one paratype, but 3.25 in the other paratype (possibly abnormal); length of chelal hand without pedicle 0.83–0.96 mm., depth 0.42–0.49 mm.; length of movable finger equal to or a little shorter than the length of the hand, 0.83–0.91 mm. In chela viewed from the side, the hand is subrectangular in outline; the pedicle a little nearer the ventral than the dorsal margin; the ventral margin weakly convex, the dorsal margin a little more convex than the ventral one; both fingers slender, very weakly curved, the movable more so than the fixed; chela gapping a little when the fingers are closed. Each chelal finger with about 45 marginal teeth, these are contiguous, slightly retro-conical, and with well-developed cusps. Movable finger with four tactile setae: *t* within the distal one-third of the finger; *st* about as far from *t* as the latter is from the finger tip; *sb* a little less than one-sixth of the finger length from the base and *b* about midway between *sb* and the proximal finger margin, being about two areolar diameters from *sb*; *st* closer to *sb* than to *t*; *nodus ramosus* between *t* and *st*, about twice as far from the latter as from the former. Fixed finger with *et* a little more than one-tenth of the finger length from the tip, *it* about as far proximal to the level of *et* as the latter is proximal to the finger tip; *est* about three-fifths of the finger length from the tip, *ist* a little proximal (about two areolar diameters) to the level of *est*; *est* and *eb* near the finger base and separated by between two and three areolar diameters; *ib* on nearly the level of *esb* and *isb* a little distal to *ib*; *nodus ramosus* on a level a little closer to *it* than to *ist* or midway between the two tactile setae.

Legs: Light yellowish brown in color; stout; femora granular, other podomeres with well-developed scale-like sculpturing; setae on the flexor surface of the tarsi acuminate and simple, otherwise chiefly subacuminate to paucidenticulate; subterminal setae of the tarsi simple. First

leg with stout pars basalis, pars tibialis less stout and with well-rounded margins; depth of pars basalis 0.2–0.22 mm.; depth of pars tibialis 0.18–0.2 mm.; entire femur 0.65–0.71 mm. long; tibia very stout, weakly S-shaped, length 0.4–0.44 mm., depth 0.12–0.14 mm.; tarsus subcylindrical, length 0.36–0.38 mm., depth 0.087–0.096 mm. Fourth leg with a conspicuous spur on the antero-lateral corner of the coxa; trochanter between 0.3 and 0.35 mm. long, depth 0.2–0.25 mm.; pars basalis subtriangular, 0.285–0.335 mm. long, 0.195–0.225 mm. deep; pars tibialis with straight flexor margin continuous with the straight flexor margin of the pars basalis, extensor margin well rounded, length 0.76–0.83 mm., depth 0.33–0.38 mm.; length of entire femur 0.88–0.98 mm., femur length from 2.6 to 2.8 times the depth; tibia a little S-shaped, length 0.58–0.66 mm., depth 0.16–0.177 mm., length 3.6 to 3.75 times the depth; tarsus subcylindrical, length 0.44–0.48 mm., depth 0.1–0.11 mm., length 4.3 to 4.7 times the depth; tactile seta of the extensor surface of the tarsus with a length nearly twice the depth of the tarsus at the level of the seta and located 0.33–0.35 mm. from the proximal margin.

Genital complex: Posterior operculum with a few scattered setae and a few marginal setae, also two groups of three setae each on the very posterior rim of the aperture; anterior operculum with 50 or more setae, chiefly grouped medially. Numerous long setae extend from the aperture of each coxal sac.

FEMALE: Unknown.

TYPE LOCALITY: Three males, the holotype and two paratypes, in a collection made 14 kilometers north of Vinales, Cuba, in September, 1913. The collector is unrecorded.

***Idiochelifer fulvopalpus*, new species**

Figures 30–32

MALE: Measurements and ratios of the body length, and the femur, tibia, and chela of the palp are given as the limits of variation of five individuals (of which three are in alcohol); measurements and ratios of other body structures are based

on the holotype and one mounted paratype, the measurements and ratios of the latter follow in parentheses the corresponding measurements and ratios of the former when the two show a significant difference. Body fairly stout, gradually widened towards the posterior end; body and legs light yellowish brown in color; length of body 2.1–2.3 mm. Carapace rounded at the anterior end; gradually widened posteriorly, widest across the posterior margin; sides nearly straight; transverse furrows well marked, the median one near the center, the posterior furrow almost twice as far from the median furrow as from the posterior carapacial margin; surface of carapace coarsely granular, with numerous seta-bearing tubercles, these especially noticeable on the sides; setae short, weakly clavate; posterior margin with 10 to 12 setae; eyes conspicuous, with weakly convex lens; length of carapace 0.75 mm., width 0.78 (0.77) mm.; ocular width 0.42 (0.39) mm. Tergites moderately granular; either all tergites divided or all except the anterior two or three divided; each first half-tergite with six or seven weakly clavate setae, half-tergites of central part of body with as many as 11 setae; all tergites except 10 and 11 laterally keeled. Sternites divided (the fourth may be incompletely divided); the halves of the fourth sternite each with four to five marginal setae, maximum number of setae on any sternal half not more than 10; sternal setae acuminate to paucidentate; sternites moderately sculptured with scale-like markings, not markedly granular; anterior stigmatic plate without setae, the posterior plate with one seta; pleural membranes marked by wavy striations; length of abdomen 1.55 mm., width about 1.1 mm.

Chelicera: Moderately stout; yellow in color; net-like markings on dorsal surface of base; longest flagellar seta minutely serrate; basal and subbasal setae much shorter than any of the other setae and with a very few minute subterminal and terminal denticulations; length of chelicera 0.22 mm., width about 0.13 mm.; movable finger 0.18 mm. long. Fixed finger a little curved; apical tooth with three small denticles on the inner margin

and three retro-conical teeth along the distal end of the inner finger margin; serrula interior with the distalmost plate spine-like and with serrate margin, the next three plates platyform and with serrate margins, other plates fused into a velum; lamina exterior with a strongly convex outer margin. Movable finger little curved, subapical lobe not especially well developed; one or two very small denticles on the inner margin of the finger at the level of the insertion of the galeal seta; galea small, with four simple rami on the distal half; galeal seta extending beyond the end of the galea; serrula exterior of 17 to 18 plates, the proximal one conspicuously longer than the rest.

Palpus: Slender; light yellowish brown in color; chela a little darker than the other podomeres; surface of all podomeres except chela coarsely granular, chelal hand moderately granular, fingers smooth; setae of maxilla paucidenticate to acuminate; investing setae of trochanter, femur, and tibia paucidenticate to subclavate, very short; setae of the chelal hand sparse, very weak, and paucidenticate, those of the fingers acuminate and a little longer. Maxilla with two pseudotactile setae on the apical process near the tip; length 0.38 mm., width about 0.25 mm. Trochanter stout, globose; sublateral protuberance rounded and weakly elevated; subdorsal protuberance strongly developed, very convex, bearing at the apex two acute and strongly conical tubercles, each of which has a clavate seta removed some distance from the tip; pedicle about as wide as long; length about 0.4 mm., width nearly 0.25 (0.235) mm. Femur slender; pedicle poorly defined and not so long as wide; outer margin flatly convex in the center, more convex at each end; flexor or inner margin weakly concave, inner surface with numerous conical tubercles (developed to a lesser degree also on the extensor surface), each with a strongly subclavate seta inserted on the side; length of femur very constant, 0.86–0.88 mm., width 0.185–0.197 mm.; length 4.45 to 4.75 times the width; except for one paratype, the length is between 4.45 and 4.55 times the width. Tibia with pedicle longer than

wide; extensor margin flatly convex, more convex near the distal end; flexor margin very weakly convex except nearly straight or even a little concave near the distal end; no seta-bearing tubercles as on the femur; length 0.77–0.81 mm., width 0.22–0.235 mm.; length 3.3 to 3.7 times the width. Chela slender; flexor margin of hand moderately convex, extensor margin much less convex; pedicle near the center of the base; hand tapering towards the very slender and moderately curved fingers; length of chela without pedicle 1.28–1.34 mm., width 0.33–0.34 mm.; length of chela 3.8 to 4.1 times the width; length of chelal hand without pedicle about 0.61 mm., depth about 0.31 mm.; length of movable finger somewhat more than the length of the hand, 0.72 (0.74) mm. From the side, chela shows the pedicle displaced slightly towards the ventral side of the base; both ventral and dorsal margins a little convex; fixed finger a little curved, movable finger nearly straight. Fixed finger with 50 or more contiguous, cusp-bearing, slightly retro-conical teeth arranged along almost the entire finger margin; movable finger with 45 or more similar teeth. Movable finger with four tactile setae: *t* about two-fifths of the finger length from the tip, *st* proximal to the midpoint of the finger and a little more than one-half as far from *t* as the latter is from the finger tip; *sb* separated from the proximal finger margin by a distance little greater than the width of the finger at the level of *sb*; *b* about two areolar diameters proximal to *sb* and about midway between *sb* and the proximal finger margin; nodus ramosus about midway between *t* and *st*. Fixed finger with *et* about one-sixth of the finger length from the tip; *it* removed from *et* by about the width of the finger at the level of *et*; *ist* a little proximal to the midpoint of the finger and *est* on a level less than two areolar diameters proximal to *ist*; *esb* and *eb* near base of finger and separated by less than two areolar diameters; *ib* near the level of *esb* and separated from *isb* by about two areolar diameters; nodus ramosus a little proximal to the level of *ist*.

Legs: Surfaces of podomeres granular, the pars tibialis of each leg coarsely so, the other podomeres more weakly granular ex-

cept the tarsus sculptured with net-like markings; setae of the extensor surfaces paucidentate and short; setae of the flexor surfaces of the pars tibialis and the tibia of each leg paucidentate but a little longer than those on the extensor surface; setae of flexor surface of tarsi acuminate; subterminal seta entire; tarsal claws simple except on the first leg. First leg with trochanter nearly 0.19 mm. long, nearly 0.13 mm. deep; pars basalis 0.148 (0.145) mm. deep; setae of the extensor margin of the pars tibialis originating from weakly developed papilliform tubercles, extensor margin of pars tibialis a little convex, the flexor margin less convex, depth 0.125 (0.122) mm.; entire femur 0.52 (0.53) mm. long, tibia except basally with nearly straight extensor margin, flexor margin convex and a little bulging, length nearly 0.36 mm., depth nearly 0.105 mm.; tarsus subcylindrical, no tarsal spur (although a weak vestige appears to be present in one of the paratypes), length 0.32 (0.355) mm., depth 0.076 (0.073) mm.; tarsal claws dissimilar; the anterior claw entire and normal, the posterior claw smaller, distally more acute, and with a minute denticulation on the convex side. Fourth leg with trochanter much deepened distally, length 0.27 (0.25) mm., depth 0.16 (0.13) mm.; pars basalis subtriangular, 0.21 (0.2) mm. long, nearly 0.14 mm. deep; pars tibialis with some setae of the extensor margin inserted on tubercles, extensor margin evenly and markedly convex, flexor margin nearly straight and continuous with that of the pars basalis; length of pars tibialis 0.53 (0.54) mm., depth 0.215 (0.21) mm.; entire femur 0.65 mm. long, about 3.1 times as long as deep; tarsus slender, extensor margin except at the base nearly straight, flexor margin moderately convex, length 0.545 (0.53) mm., depth 0.118 (0.114) mm.; tarsus subcylindrical, 0.39 (0.41) mm. long, 0.08 (0.076) mm. deep.

Genital complex: Coxal sacs with a compact group of setae protruding from the aperture; setae of the posterior operculum widely scattered, sparse, and poorly developed except for two groups of three setae each on the posterior rim of the aper-

ture; anterior operculum with about 60 setae.

FEMALE: Much like the male in general appearance except larger in size and the abdomen relatively stouter; length of body 3.05 mm. Carapace much as in the male; length 0.93 mm., width 0.88 mm.; ocular width 0.45 mm. Abdomen with all tergites divided, not keeled; sternite 4 not divided, sternites 5 and 6 indistinctly divided, other sternites conspicuously divided; fourth sternite with eight setae; anterior sternites very weakly sculptured, posterior sternites conspicuously sculptured; stigmatic plates and pleural membranes as in the male; abdomen oval and wide; abdomen 2.15 mm. long, 1.6 mm. wide.

Chelicera: Chiefly as in the male but a little larger; length 0.26 mm., width of base 0.155 mm.; length of movable finger 0.205 mm.; galea not observed as broken from both chelicerae.

Palpus: Essentially like that of the male except larger, a little darker in color, and the tibia stouter and with a more convex flexor margin; maxilla nearly 0.5 mm. long, 0.31 mm. wide; trochanter 0.48 mm. long, 0.27 mm. wide; femur 1.04 mm. long, 0.228 mm. wide; tibia 0.91 mm. long, 0.27 mm. wide; chela without pedicle 1.52 mm. long, 0.405 mm. wide; chelal hand 0.76 mm. long, 0.375 mm. deep; movable finger 0.8 mm. long. Movable finger with tactile seta *t* just within the distal one-third of the finger length; *st* near the midpoint of the finger; *sb* and *b* about as in the male; nodus ramosus a little closer to *st* than to *t*. Tactile setae of fixed finger as in the male except *et* and *it* relatively a little closer to the finger tip, and *est* and *ist* are very near the midpoint of the finger; nodus ramosus about as in the male.

Legs: Sculpturing and chaetotaxy as in the male; all tarsal claws simple. First leg much like that of the male except larger, the extensor margin of the tibia is a little concave, and the tarsus is a little narrowed distally; depth of pars tibialis 0.15 mm.; entire femur 0.61 mm. long, 0.17 mm. deep; tibia 0.415 mm. long, 0.103 mm. deep; tarsus 0.39 mm. long, 0.08 mm. deep. Fourth leg like that of the male ex-

cept larger and the extensor margin of the tibia is a little concave; trochanter between 0.36 and 0.37 mm. long, almost 0.2 mm. deep; pars basalis 0.277 mm. long, 0.175 mm. deep; pars tibialis 0.67 mm. long, 0.255 mm. deep; entire femur 0.83 mm. long, 3.25 times as long as deep; tibia 0.66 mm. long, 0.145 mm. deep; tarsus 0.46 mm. long, 0.1 mm. deep; a short pseudotactile seta (apparently broken in the males studied) near the end of the extensor surface of the tarsus.

Genital complex: Posterior operculum with 10 marginal setae; anterior operculum with two groups of seven setae each, located immediately anterior to the genital aperture.

TYPE LOCALITY: The male holotype, the female allotype, and four male paratypes (three in alcohol, one mounted) from a collection made by S. Mulaik on May 2, 1936, from Reynosa, Tamaulipas, Mexico.

REMARKS: *Idiochelifer fulvopalpus* is the second species to be described in this genus, which was established by Chamberlin in 1932 with Ewing's *Chelifer cancroides* var. *nigripalpus* as the genotype. Our species differs from *nigripalpus* in several ways, among the most important of which are the following: *fulvopalpus* has many seta-bearing tubercles on the carapace, these are sparse or wanting in *nigripalpus*; in *fulvopalpus* the length of the palpal chela (without the pedicle) is never more than 4.1 times the width and the hand (without the pedicle) is shorter than the palpal tibia by at least 0.15 mm., in *nigripalpus* the length of the chela is more than 4 times the width and the hand is no more than 0.05 mm. longer than the tibia; the flexor margin of the tibia just distal to the pedicle is somewhat flattened in *fulvopalpus* but more convex in *nigripalpus*; and the pedal tarsi, which are more or less subcylindrical in *fulvopalpus*, are distally tapering in *nigripalpus*. The type specimens of *nigripalpus* used for comparison with *fulvopalpus* do not show the very dark palps that Ewing indicated both in his description and in the species name.

Idiochelifer nigripalpus (Ewing, 1911) Chamberlin, 1932

Chelifer cancroides var. *nigripalpus* EWING, 1911, Jour. New York Ent. Soc., vol. 19, pp. 73, 80, figs. 1 (?), 2. *Chelifer nigripalpus* CHAMBERLIN, 1931, Stanford Univ. Publ., Univ. Ser., Biol. Sci., vol. 7, no. 1, p. 52, fig. 11-N, 11-O. *Idiochelifer nigripalpus* CHAMBERLIN, 1932, Canadian Ent., vol. 64, p. 19; BEIER, 1932, Das Tierreich, vol. 58, p. 229; ROEWER, 1937, in Bronn, H. G., Die Klassen und Ordnungen des Tierreichs, vol. 5, div. 4, book 6, no. 2, p. 312.

Through the kindness of Mr. Henry Dietrich, Curator of the Department of Entomology at the Cornell University Museum, the writer has been able to examine four specimens of *nigripalpus* from what is apparently the original type lot studied by Ewing. These specimens are mounted on slides but are not indicated as being types, although each bears the notation "n. var." Chamberlin examined these specimens, used the species as the genotype for his genus *Idiochelifer*, but gave no species description. Since no species description exists in the literature, it seems advisable to give as complete a description as possible from the specimens at hand.

Of the four specimens, which apparently represent a part of the type lot, two, one male and one female, are mounted on slides in balsam and, except that they are not dissected, are in good condition for study. The other two specimens apparently were mounted by Ewing in a modified glycerin jelly, and the slides were sealed with asphaltum. During the course of years, these slides have deteriorated until they are no longer useful. The poorly supported cover-glasses have allowed the chelae to be crushed; the animals are somewhat dry and opaque; and, in addition, the mounting medium used has evidently caused considerable distortion. The following descriptions are based on the male and female mounted in Canada balsam. In order to avoid confusion in the future, it seems advisable to designate the mounted male specimen (which bears the notation by Chamberlin: "JC-630.01001") as the lectotype.

MALE: Body moderately stout, palpi slender, legs moderately slender; body light brown in color with palpi and legs

about the same color; length of body 2.05 mm. Carapace granular, with very few poorly developed seta-bearing tubercles; carapace narrowing towards the anterior end; two transverse furrows, the one near the center of the body, the other twice as far from the first as from the posterior carapacial margin; two eyes; setae stout, multidenticulate, weakly subclavate; length of carapace 0.73 mm., width little less; width of carapace just behind the eyes equal to 0.4 mm. Abdomen with probably all of the tergites divided; surface of tergites about as granular as the carapacial surface; setae chiefly subclavate; number of setae on each central half-tergite probably eight; anterior and central tergites with weakly developed lateral keels. Sternites divided, with almost smooth surface. Length of abdomen about 1.25 mm., width little more than 1 mm.

Chelicera: Movable finger nearly 0.2 mm. in length; other details not discernible with certainty.

Palpus: Trochanter, femur, and tibia moderately to coarsely granular; maxilla (except perhaps the very ventral surface) and the inner surface of the chelal hand finely granular, otherwise smooth; setae of the coarsely granular surfaces short, stout, denticulate; setae of the maxilla and the chelal hand subacuminate to acuminate, those of the fingers acuminate. Trochanter with a globose and little elevated subdorsal protuberance; trochanter about 0.42 mm. long, 0.225 mm. wide. Femur with a fairly well-defined pedicle which is wider than long; inner margin of femur very weakly concave to virtually straight, outer margin flatly convex; length 0.82 mm., width 0.182 mm. Tibia with margins weakly convex, pedicle about as long as wide; length 0.67 mm., width 0.21 mm. Chela with the pedicle displaced a little towards the inner margin; both margins of the chelal hand weakly convex, the inner a little more convex than the outer; a very shallow concavity present on the inner margin near the base of the fingers; fingers slender, long, gently curved; length of chela without pedicle 1.36 mm., width 0.315 mm.; length of hand 0.65 mm.; length of movable finger

0.75 mm. Side view of chela not obtained. Tactile setae of movable finger with *t* a little farther from the finger tip, otherwise much as in *I. fulvopalpus*. Fixed finger with *et* a little more than one-fifth of the finger length from the tip, *it* a little closer to *et* than the latter is to the finger tip; *ist* and *est* on about the same level and considerably proximal to the midpoint of the finger; more basal setae much as in *I. fulvopalpus*.

Legs: Most podomeres marked by scale-like sculpturing, ranging from somewhat granular on the femora to very weakly developed on the tarsi; setae paucidenticulate to acuminate; terminal claws simple except for the accessory tooth on one of the claws of each first leg. Position precludes determination of most measurements; tarsus of first leg is about 0.35 mm. long, 0.08 mm. deep; tarsus of the fourth leg about 0.42 mm. long, 0.085 mm. deep, with a tactile seta removed 0.29 mm. from the proximal margin; tarsi of all legs tapering somewhat towards the distal end, not conspicuously subcylindrical.

Genital complex: Details not determined; conforming to the characteristics of the tribe Chelifnerini.

FEMALE: General shape and color as in the male but palpal chelae a little darker and legs a little lighter in color than the rest of the body; body length 2.3 mm. Carapace like that of the male; posterior carapacial margin with 11 subclavate setae; length of carapace 0.86 mm. Tergites including the eleventh divided; each central tergal-half with seven to nine setae; tergites without lateral keels. Sternites much as in the male; pleural membranes striated; length of abdomen about 1.45 mm., width a little more than 1.1 mm.

Chelicera: Moderately stout; dorsal surface of hand rugose; longest of the flagellar setae unilaterally serrate; length of the chelicera about 0.26 mm.; width of base not determined; movable finger a little less than 0.2 mm. in length; serrula exterior of 17 or 18 plates.

Palpus: Palps essentially like those of the male except the chelal hand lacks the shallow concavity on the inner margin near the finger base and, among other slight

variations in the position of the tactile setae of the chelal fingers, the tactile seta *ist* is a little proximal to the level of *est*. Measurements of palpal podomeres of the female include: maxilla 0.45 mm. long, 0.29 mm. wide; trochanter 0.45 mm. long, 0.24 mm. wide; femur 0.83 mm. long, 0.192 mm. wide; tibia 0.73 mm. long, 0.225 mm. wide; chela without pedicle 1.41 mm. long, 0.335 mm. wide; chelal hand without pedicle 0.68 mm. long; movable finger 0.78 mm. in length.

Legs: As in the male except all the tarsal claws are simple. A few measurements, which may not be considered entirely accurate since the legs are not properly oriented for measuring, were secured. First leg with tibia 0.35 mm. long, 0.091 mm. deep; tarsus 0.34 mm. long, 0.072 mm. deep. Fourth leg with pars basalis 0.24 mm. long, 0.17 mm. deep; pars tibialis 0.58 mm. long, 0.25 mm. deep;

entire femur 0.69 mm. long; tibia 0.52 mm. long, 0.125 mm. deep; tarsus 0.42 mm. long, 0.08 mm. deep; tactile seta of tarsus as in the male.

Genital complex: Details not available.

TYPE LOCALITY: All four type specimens examined were taken at Ames, Iowa, in September, 1909, by Dr. H. E. Ewing. The Cornell collections also include a fifth Iowa specimen not marked as a new variety or type, but which was taken apparently with the lectotype, and a single specimen from Marshall, Illinois. The Wisconsin record given by Beier (1932) and copied by others is probably erroneous and is not substantiated either by the literature or by available specimens. All the specimens of *I. nigripalpus* were taken from beneath the bark of elm (*Ulmus americana* Linnaeus) or oak (*Quercus alba* Linnaeus and *Quercus* sp.) trees.

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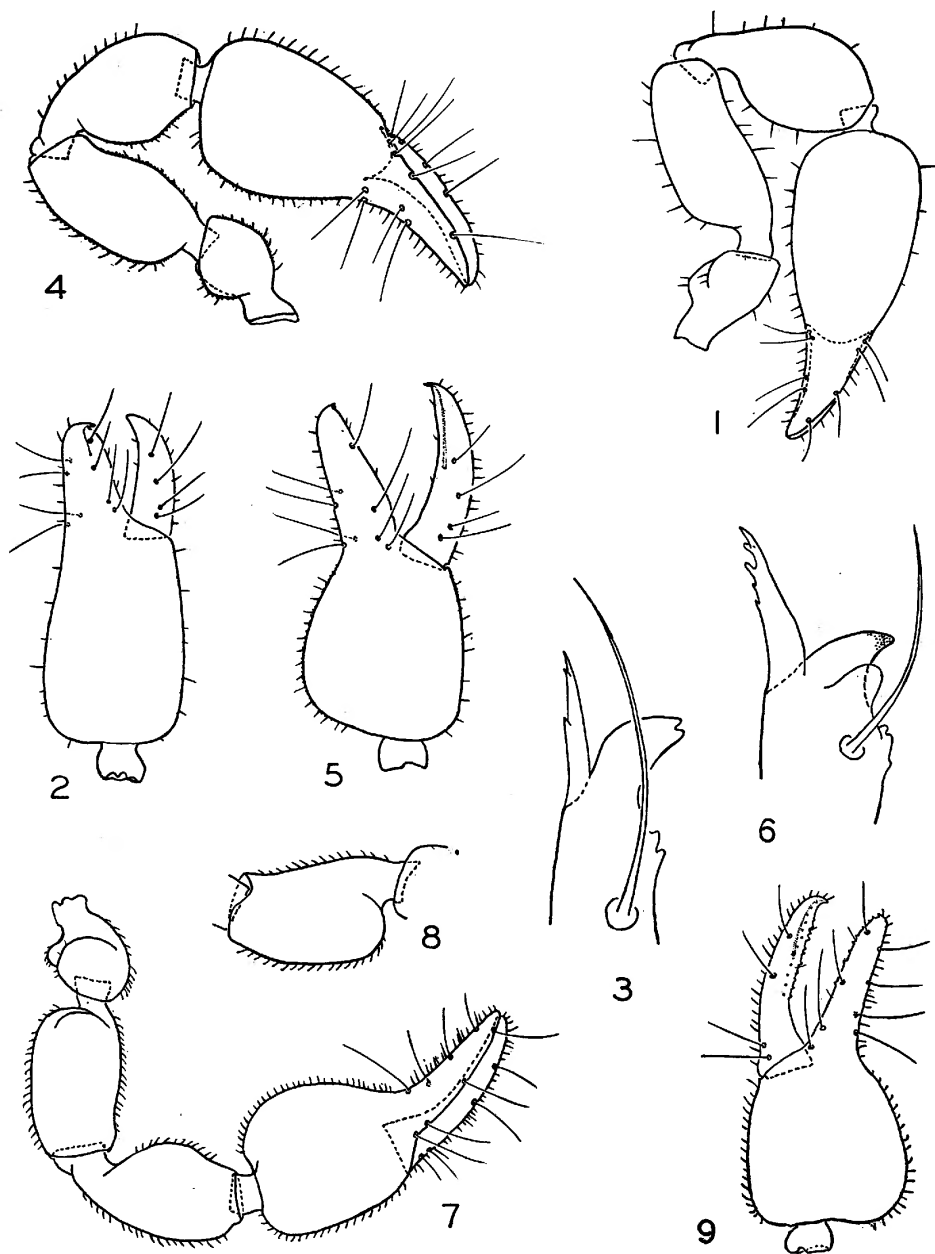


Fig. 1. *Atemnus neotropicus*, new species, female holotype. Dorsal view of palp; tactile setae of movable chelal finger omitted.

Fig. 2. Idem, lateral view of chelal hand; marginal teeth not shown.

Fig. 3. *Parachernes (Argentochnes) robustus*, new species, male holotype. End of movable finger of chelicera; serrula exterior not shown.

Fig. 4. Idem, dorsal view of palp.

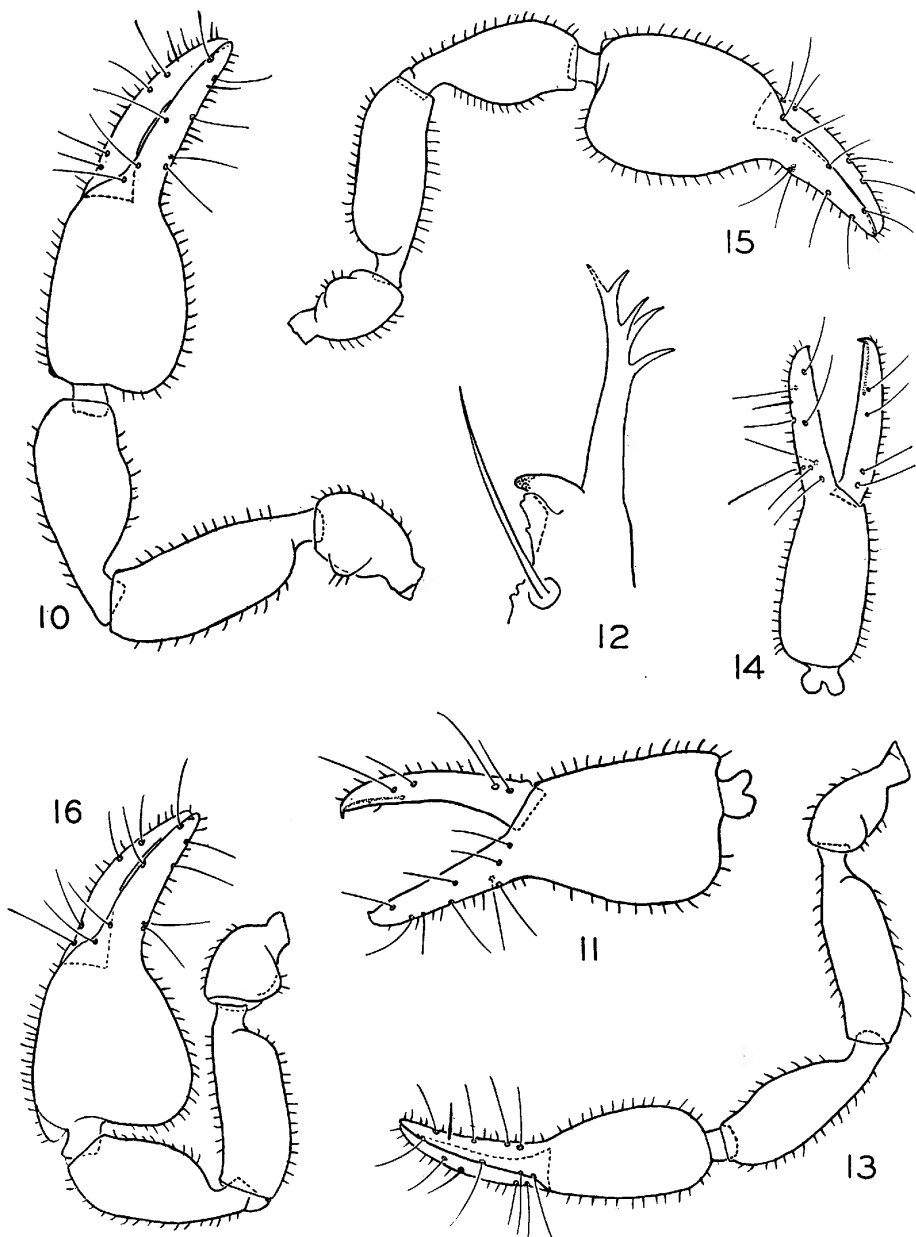
Fig. 5. Idem, lateral view of chelal hand; teeth of fingers omitted.

Fig. 6. *Hesperochnes inusitatus*, new species, male holotype. Galea and tip of movable finger of chelicera.

Fig. 7. Idem, dorsal view of palp.

Fig. 8. Idem, sublateral view of palpal femur.

Fig. 9. Idem, lateral view of chelal hand; marginal teeth of both fingers and the internal accessory teeth of the fixed finger not shown.



- Fig. 10. *Dinocheirus magnificus*, new species. Dorsal view of palp, male holotype.
 Fig. 11. Idem, lateral view of chelal hand, male holotype; teeth of chelal fingers omitted.
 Fig. 12. Idem, end of movable cheliceral finger, female allotype.
 Fig. 13. Idem, dorsal view of palp, female allotype.
 Fig. 14. Idem, lateral view of chela, female allotype; chelal teeth omitted.
 Fig. 15. *Dinocheirus magnificus superior*, new variety, male holotype. Dorsal view of palp.
 Fig. 16. *Dinocheirus proximus*, new species, male holotype. Dorsal view of palp.

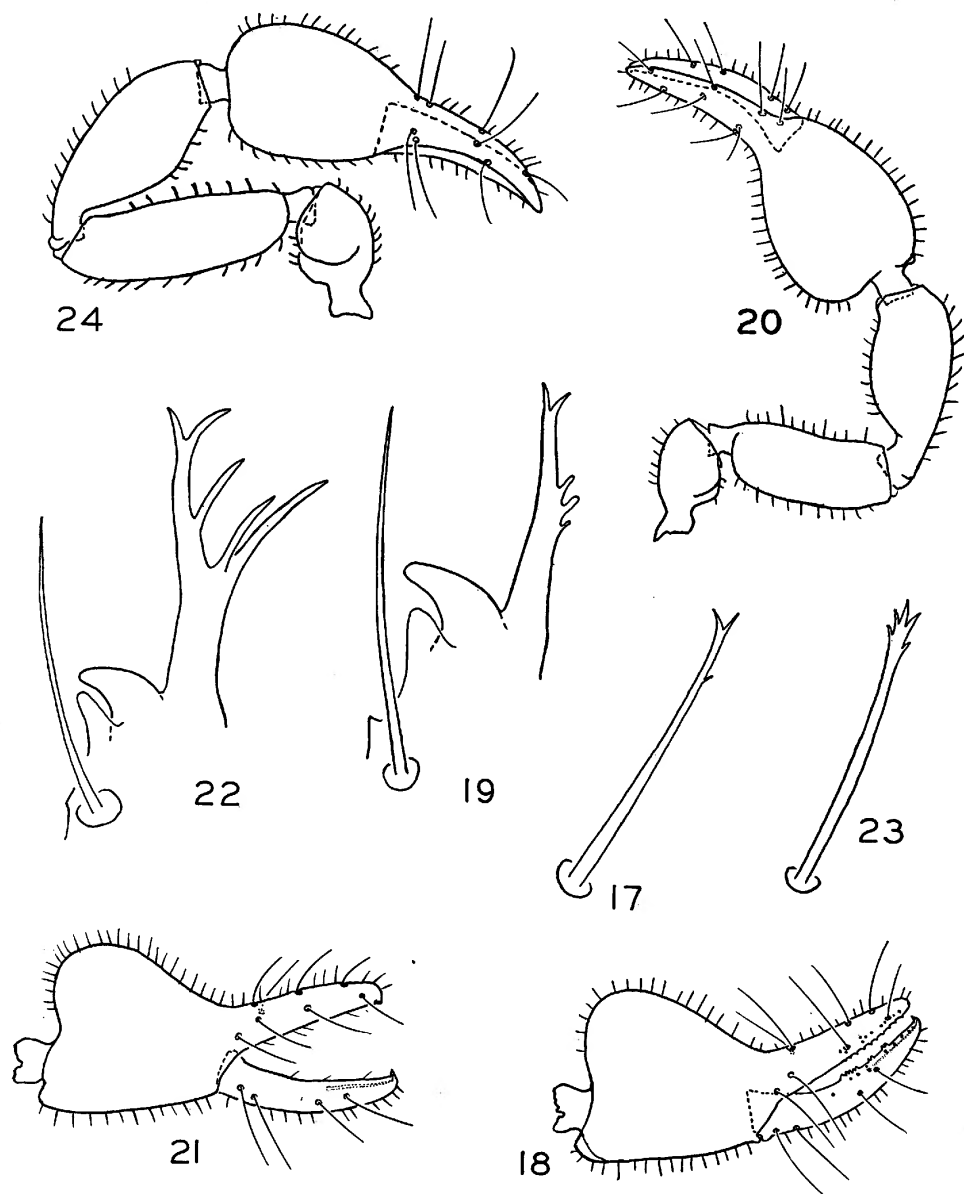


Fig. 17. *Dinocheirus proximus*, new species, male holotype. Subbasal seta of the cheliceral base.

Fig. 18. Idem, lateral (slightly sublateral) view of chela; marginal chelal teeth omitted.

Fig. 19. *Dinocheirus aequalis* (Banks, 1908) Roewer, 1937. Tip of movable finger and galea of chelicera, male.

Fig. 20. Idem, dorsal view of the palp, male.

Fig. 21. Idem, lateral view of the chela, male; teeth of fingers omitted.

Fig. 22. Idem, galea and end of movable cheliceral finger; tritonymph.

Fig. 23. *Cacodemonius quartus*, new species. Subbasal seta of the chelicera, male holotype.

Fig. 24. Idem, dorsal view of palp, male holotype; tactile setae of the movable chelal finger omitted.

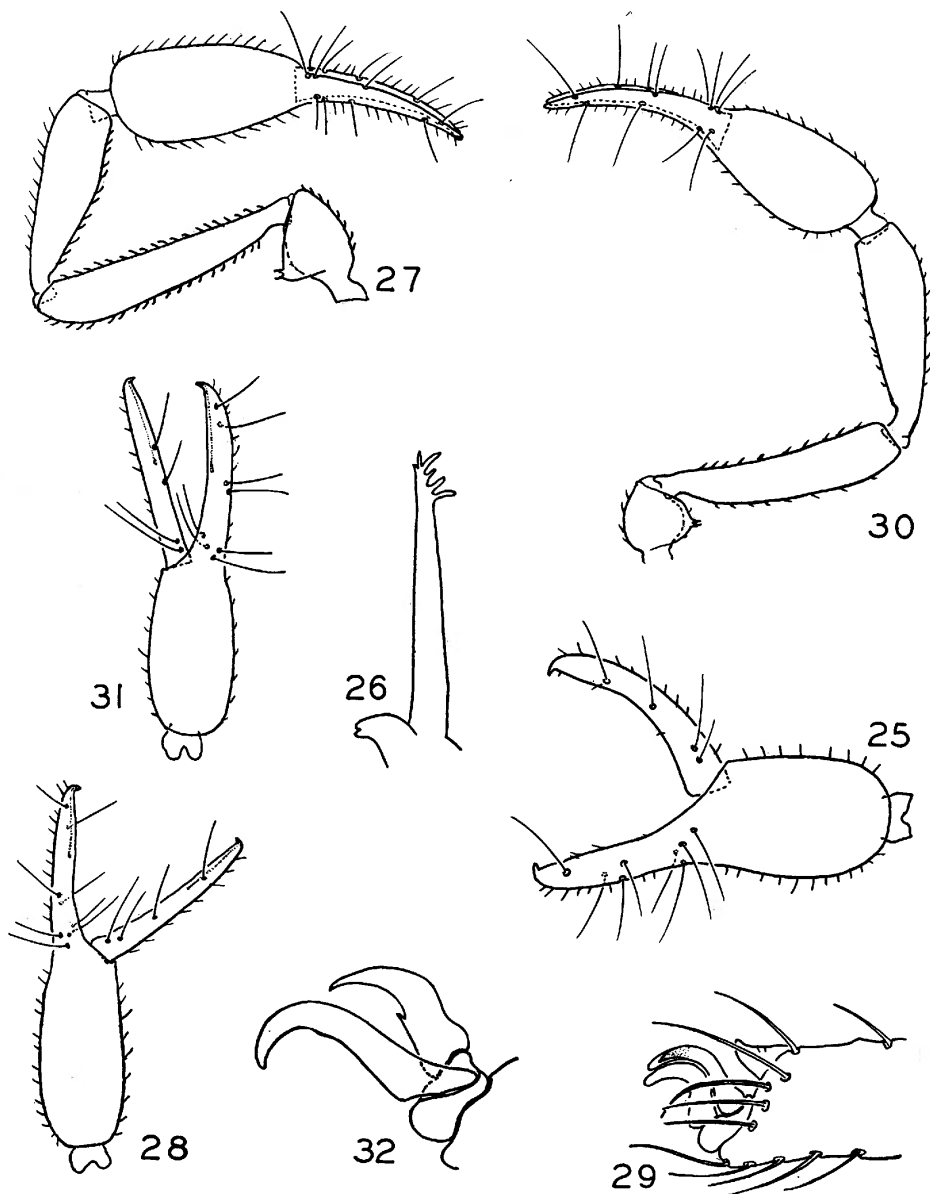


Fig. 25. *Cacodemonius quartus*, new species. Lateral view of the chelal hand, male holotype; teeth and nodi ramosi of chelal fingers not indicated.

Fig. 26. Idem, galea and apical tooth of movable cheliceral finger, female allotype.

Fig. 27. *Cubachelifer strator*, new species, male holotype. Dorsal view of palp.

Fig. 28. Idem, lateral view of chela; marginal teeth of fingers not shown.

Fig. 29. Idem, end of tarsus of first leg; arolium omitted.

Fig. 30. *Idiocheliifer fulvopalpus*, new species, male holotype. Dorsal view of palp.

Fig. 31. Idem, side view of chela; marginal teeth of fingers omitted.

Fig. 32. Idem, terminal claws of tarsus of first leg.